DOCUMENT RESUME

ED 211 072 IR 009 892

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TITLE Instructional Technology and Learning Resource Center-Based Community Education.
INSTITUTION San Jose State Univ., Calif.
SPONS AGENCY Agency for International Development (Dept. of State), Washington, D.C.
PUB DATE 15 Dec 77
GRANT AID/1A-G-1169
NOTE 202p.; Performed as a subcontract for Cfiesh Associates, Inc.

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS *Community Education; Educational Equipment; Foreign Countries; *Instructional Materials; *Media Selection; *Resource Allocation; *Visual Aids
IDENTIFIERS *Latin America

ABSTRACT

A survey of nonformal community education activities was conducted to determine specific use of media for identified educational and informational purposes. The results presented in this report are intended to provide resource information to professionals and paraprofessionals who ultimately may be employed in Learning Resource Center-Based Community Education System (LRCBCES) programs in Latin America. Materials provided include sections on: (1) instructional technology and the systematic approach to learning; (2) the systematic approach and the LRCBCES project; (3) the broadcast media; (4) media and the LRCBCES approach; and (5) media utilization: print, motion pictures, video, audio, pictoral (still), symbolic, graphic, dramatic, interpersonal, 3-D, and real. Related readings are listed for each chapter, and appendices include a world-wide directory of organizations working with instructional technology in developing countries and a list of useful periodicals. (MER)

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INSTRUCTIONAL TECHNOLOGY
and
Learning Resource Center-Based Community Education

by
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UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT
GRANT NO. AID/1A-G-1169

Performed as a Subcontract for Ofiesh Associates, Inc.

for
San José State University
Agency for International Development
Project

(Gene Lamb, Director)

December 15, 1977

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MEDIA IN THE LRCBCES PROGRAM

TABLE OF CONTENTS

PART ONE

Foreword

Page

I. INSTRUCTIONAL TECHNOLOGY AND THE SYSTEMATIC APPROACH TO LEARNING: AN OVERVIEW

Systematic Approach of Instructional Technology..... 2
Rationale for Application of the Systematic Approach of Instructional Technology to Nonformal Education..... 3
Basic Elements of the System..... 5

II. THE SYSTEMATIC APPROACH AND THE LRCBCES PROJECT

Setting Goals to Be Achieved..... 7
Selecting Subject Content Related to Goals..... 11
Determining the Status of Learners..... 14
Selecting Teaching/Learning Modes..... 17
Selecting Types and Schedules of Learning Experiences..... 19
Selecting and Assigning Personnel..... 24
Selecting Learning Materials and Equipment..... 26
Choosing (or Developing) and Using Facilities... 31
Implementation, Evaluation, and Improvement of the Plan..... 32

III. THE BROADCAST MEDIA

Correcting Some Past Mistakes..... 35
Strengths of Broadcast Media..... 37
Limitations of Broadcast Media..... 38
Overcoming Limitations of Broadcast Media..... 40
Examples of Successful Radio Broadcast-Oriented Nonformal Education Projects..... 41
Uses of Broadcast-Oriented Television Programs in Nonformal Education Projects..... 45
The Future of Broadcast Media in Developing Country Nonformal Education..... 48

Page

IV. MEDIA AND THE LRCBCES APPROACH

Changing Conceptions of Media in Development Work..... 50
Appropriate Instructional Technology..... 52
Folk Media..... 55
Programmed and Modularized Learning..... 57
Multimediated Learning Through Learning Modules..... 61
Media Selection..... 62
Media Literacy: A Consideration of Selection..... 64
Media Utilization..... 68
Media Production..... 71
Media Product Procedures..... 74
A Media Taxonomy: Introduction..... 76

PART TWO

V. MEDIA UTILIZATION: PRINT

Print Types..... 78
Description..... 78
Advantages..... 79
Limitations..... 79
Examples of Use..... 80

VI. MEDIA UTILIZATION: MOTION PICTURES/VIDEO

Types of Motion Picture/Video Media..... 84
Description..... 84
Advantages..... 85
Limitations..... 87
Examples of Use..... 88

VII. MEDIA UTILIZATION: AUDIO

Types of Audio Media..... 95
Description..... 95
Advantages..... 97
Limitations..... 98
Examples of Use..... 100

VIII. MEDIA UTILIZATION: PICTORIAL (STILL)

Types of Pictorial (Still) Media..... 107
Description..... 107
Advantages..... 109
Limitations..... 111
Examples of Use..... 112

Page

IX. MEDIA UTILIZATION: SYMBOLIC; GRAPHIC

Types of Symbolic, Graphic Media..... 117
Description..... 118
Advantages..... 119
Limitations..... 120
Examples of Use..... 121

X. MEDIA UTILIZATION: DRAMATIC, INTERPERSONAL

Types of Dramatic, Interpersonal Media..... 125
Description..... 125
Advantages..... 126
Limitations..... 127
Examples of Use..... 129

XI. MEDIA UTILIZATION: THREE-DIMENSIONAL, REAL

Types of Three-Dimension, Real Media..... 135
Description..... 135
Advantages..... 137
Limitations..... 138
Examples of Use..... 139

APPENDIX

A. INSTRUCTIONAL/EDUCATIONAL TECHNOLOGY ORGANIZATIONS (WORLD-WIDE)

United States..... 144
Canada..... 154
Latin America and the Caribbean..... 155
Europe (including the United Kingdom)..... 160
Asia..... 164
Australia..... 166
Africa..... 166

B. PERIODICALS OF VALUE TO LRCBCES PERSONNEL..... 167

C. BIBLIOGRAPHY 173

FOREWORD

This report results from a survey effort conducted during the Spring, Summer, and early Fall, 1977, as a subcontract through Ofiesh Associates, Inc. (Gabriel Ofiesh, President), Arlington, Virginia, for the LRCBCES-AID Project, San Jose State University (Gene Lamb, Director).

Tasks assigned to the subcontract project were as follows:

* To conduct a survey of literature and experiences of nonformal community education activities involving specific uses of media for various educational/informational uses;

* To present the findings as a separate report, including recommendations and media utilization techniques and procedures having special application to the LRCBCES project.

The principal audiences assumed for the report that follows are the professional and paraprofessional personnel who ultimately may be employed in Learning Research Center Based Community Education System (LRCBCES) programs in Latin America at each of three levels: (a) national--ministry of education, or other top agency coordinating the program, (b) regional, and local. It is intended that through use of this report, and the carrying out of the recommended related readings, recommended with each chapter, should provide readers with a basis for developing many of the understandings, skills, and appreciations typically expected of various types of instructional technology personnel.

This report does not pretend to cover the entire literature of the instructional technology field as it pertains to developing

country education; it does report a considerable portion of it, however, that is regarded as a fair sample of journalistic opinions, of reports of actual experience, and, where available, of field-based objective studies of several different kinds. In preparing this report, the author has been impressed by the volume, scope and insightfulness of many of the products related to topic studied. The topic itself represents an area that is worthy of considerable further investigation, support, and cooperation by instructional technologists of developed countries generally, and there are recent signs that these things are actually being done to greater extent than ever before.

Three Appendix entries will permit users of this report to proceed further in their studies of the topic and to pursue on their own the additional information they may need to perform their duties. Appendix A consists of a worldwide directory (itself believed to be quite complete) of organizations, associations, and centers known to be conducting studies, gathering data, or providing technical information assistance to individuals interested in applying instructional technology principles in developing country education. A large number of these units cooperated with the author by providing sample newsletters, special reports, and direct information regarding the topic.

Appendix B lists periodicals (magazines, newsletters, annuals, etc.) that also bear upon the field of developing country instructional technology and nonformal education. Appendix C includes the bibliography of all items consulted in the study, including those which were quoted from (as identified in the text) and those that were not.

The author wishes to acknowledge the valuable assistance rendered in preparing this report to Pamela Tiedt (doctoral student and research assistance, Department of Linguistics, Stanford University, writer, editor, and consultant in linguistic and multilingual/multicultural fields) for her summaries of characteristics, advantages, and limitation of several groups of media that appear in Part Two.

Valuable suggestions for ideas and sources related to this report came from Gabriel Ofiesh (President, Ofiesh Associates, Inc., for whom this project was performed as a subcontract of the basic contract between San Jose State University and The Agency for International Development); from Harbans Bhola (Indiana University); from Harold H. Hailer (Chairman, Department of Instructional Technology, San Jose State University); and from Gene Lamb (Director of the LRCBCES Project, also of San Jose State University). Jock Gunter (Director, Clearinghouse on Development Communication, Washington, D.C.) and Peter Spain (Department of Communication, Institute for Communication Research, Stanford University) provided numerous other useful suggestions and materials to be reviewed.

---James W. Brown
San Jose, California
December 15, 1977

I. INSTRUCTIONAL TECHNOLOGY AND THE SYSTEMATIC APPROACH TO LEARNING: AN OVERVIEW

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. 1. "Los Medios y el enfoque sistemático de la enseñanza y el aprendizaje"

Brown-Lewis (Eds.), Instrucción Audiovisual: Manual de Ejercicios Intensivos. 1. "Como usar este manual"; 2. "Como aprender a manejar equipos audiovisuales"

* * *

The recent upsurge of interest in and use of instructional or educational technology in the search for solutions to educational problems generally (as contrasted, say, with those of nonformal education in developing countries) has been, in part, an outgrowth of the study of issues and opportunities of the field by the President's Commission on Instructional Technology. In that group's Final Report the statement is made:

> Instructional technology can be defined in two ways. In its more familiar sense, it means the media borne of the communications revolution which can be used for instructional purposes alongside the teacher, textbook, and blackboard. The second and less familiar definition of instructional technology goes beyond any particular medium or device. In this sense, instructional technology is more than the sum of its parts. It is a systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction. (Tickton, To Improve Learning, p. 21.)

It is the second description (or definition) of instructional technology that will become a principal part

and concern of this report. Rowntree provides further information about it:

> Educational technology is not to be confused with electronic gadgetry . . . Educational technology is as wide as education itself; it is concerned with the design and evaluation of curricula and learning experiences and with the problems of implementing and renovating them. Essentially, it is a rational, problem-solving way of approaching education, a way of thinking skeptically and systematically about learning and teaching. (Rowntree, Educational Technology in Curriculum Development, Foreword.)

The foregoing definitional descriptions will thus be seen to contrast quite sharply with a more limited view of the term expressed by such developing country education specialists as Wells and others, who characterize it as follows:

> The common usage of "technology" is to associate it with some type of equipment. The traditional educational system in which information is conveyed from one person to one or more persons through personal communication, (is) not considered to be an "instructional technology." Radio, television, films, and computers are instructional technologies. (Wells, Instructional Technology in Developing Countries, p. 6.)

Systematic Approach of Instructional Technology

Three definitions having to do with "system" or "systematic" applications of the principles of instructional technology complete the presentation of the framework in which "instructional technology" will be examined and used in the remainder of this report. A recent publication of the Association for Educational Communications and Technology provides them:

System---The structure or organization of an orderly whole, clearly showing the inter-relationships of the parts to each other and to the whole itself (Silvern). A process which synthesizes and interrelates the components of a process within a conceptual framework, insuring continuous, orderly, and effective progress toward a stated goal. (Heinich)

System approach--A process for effectively and efficiently achieving a required outcome based on documented needs; a form of logical problem-solving akin to the scientific method; a process by which needs are identified, or are selected from alternatives, methods and means are obtained and implemented, results are evaluated, and required revisions to all or part of the system are made so that the needs are eliminated. (Kaufman)

System approach---A complex plan or strategy which logically accounts for and relates in an orderly fashion: goals, behavior, instrumentation, and resources for the purpose of removing or reducing problems associated with the training or education of learners. (Division of Instructional Development, Association for Educational Communications and Technology) (Educational Technology: Definition and Glossary of Terms, pp. 175-176.)

Rationale for Application of the Systematic Approach of Instructional Technology to Nonformal Education

The rationale used here to support the systematic application of instructional technology to developing country nonformal education efforts rests, first, on the demonstrated fact that it is a scientific problem-solving approach which is closely akin to the "appropriate technology" concept (to be discussed later, in Chapter 4). Used and applied in this way, it need not be subjected to the stigma that is so often associated with overseas development work, namely, that it is "foreign" and thus inapplicable to local situations and cultures.

Second, leaning heavily as it does upon mediated communication and instruction, the Instructional Fducational Technology Approach to nonformai education offers many advantages missing which most others. For example, it reduces but by no means eliminates dependence upon trained teachers (a scarce resource in developing countries). It requires only limited literacy/literary capabilities of participants, although it does require that they be given training in "reading" visuals and in comprehending principally audio communications. It has an inherent strength in catching and holding participants' attention and in motivating them toward desired actions or attitudes. It is adaptable to local situations--especially when materials and plans for programs are produced on-the-spot, and when use is made of near-at-hand resources, personnel, and facilities. It is flexible in that many instructional programs developed for one purpose and in one location may be utilized as is or adapted in various ways for other applications in other geographic areas. A further flexibility may be noted in the breadth of utilization of some of the same system materials with groups or individuals of various sizes and ages. One more advantage of materials designed for and used in systematic nonformal education using the instructional technology approach is that they are usually replicable, and capable of being expanded in numbers to meet various situational requirements. If the system itself

is thoroughly applied, those same materials will have been tested to validate their teaching/learning effectiveness and, often, their cost-effectiveness as well. Finally, materials used in the Systematic Approach of Instructional Technology to nonformal education are, in many instances, highly portable and/or easily distributed (as, for example, radio and television programs) over wide geographic areas, and, in the case of the former, at exceptionally low cost.

Basic Elements of the System

The Systematic Approach of Instructional Technology to nonformal education of developing countries (aimed chiefly at those of Latin America) will be presented in the next chapter as a largely sequential, decision-making process involving the following determinations:

1. Goals or objectives to be achieved.
2. Subject content essential to goal achievement.
3. Current status of learners with respect to: (a) ability to learn, (b) learning styles or preferences, and (c) the goals set for the learning.
4. Teaching-learning modes of most promise, given the circumstances, the goals, and the resources for learning.
5. Types and schedules of learning experiences of most promise for the required learning.
6. Personnel required to organize and carry out experiences.
7. Learning materials and equipment available to support learning experiences.
8. Facilities available in or through which to arrange the recommended learning experiences.

9. Implementation or operation of the plan.

10. Evaluation of results obtained from the plan.

11. Program improvement justified by results of the evaluation.

II. THE SYSTEMATIC APPROACH AND THE LRCBCES PROJECT

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. 2. "Como elegir, usar, y producir medios"

Brown-Lewis (Eds.), Instruccion Audiovisual: Manual de Ejercicios Intensivos. 4. "Planeamiento del uso medios educativos"

* * *

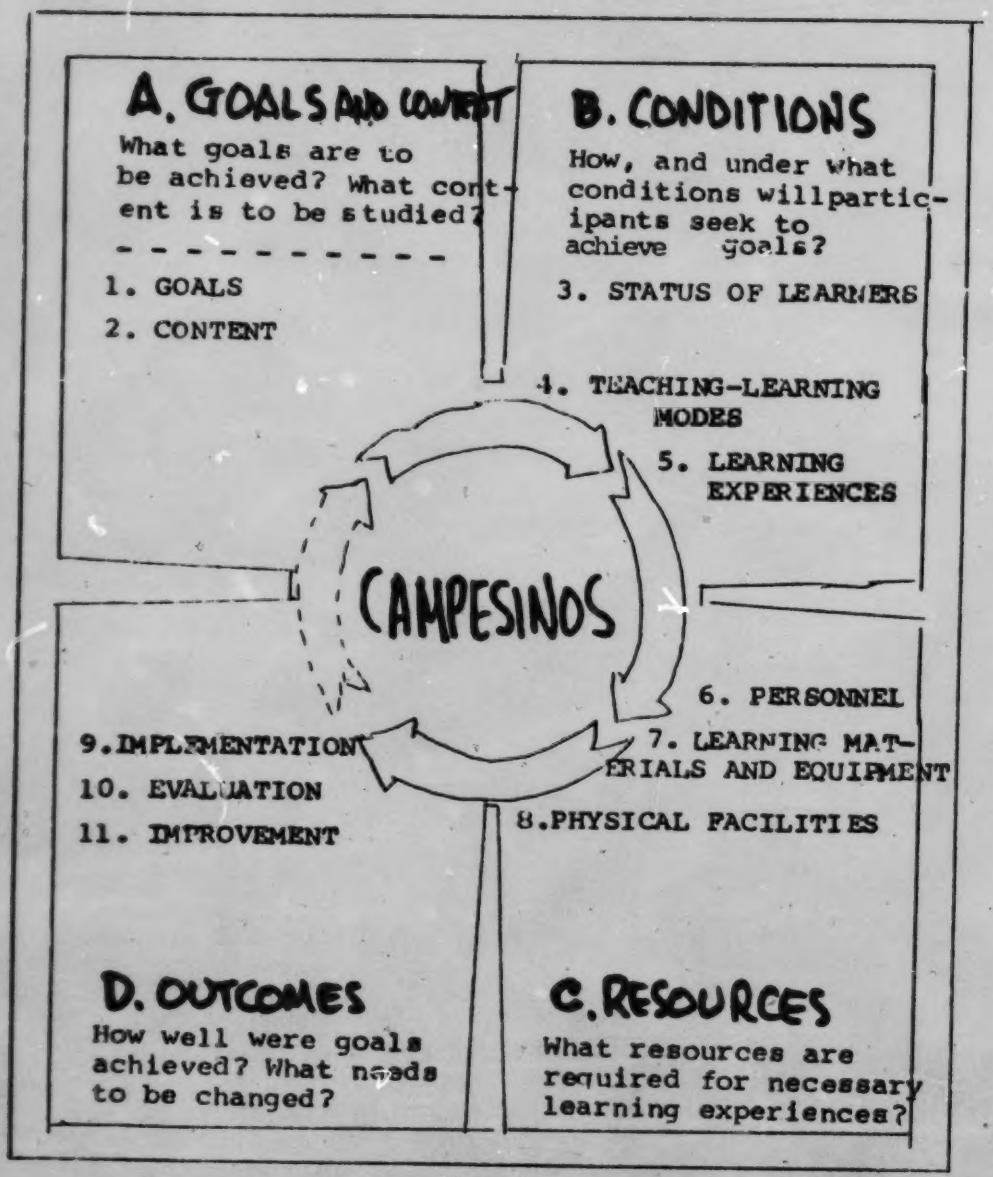
For as long as instruction has been attempted, and in whatever forms or locations, four basic questions about it have needed to be answered about it:

* What goals are to be achieved in the context of what subject matter?
* How, and under what conditions, will learners optimally seek to achieve those goals?
* What human and nonhuman resources and facilities will be required and how will they be used to offer the necessary learning experiences?
* At the termination of instruction, as well as at interim points, how "good" are the outcomes?

Setting Goals to be Achieved

In his project paper "Learning Resources for Community Education: An Integrative General Model," developed for the Learning Resource Center Based Community Education System (LRCBCES) Project, Bhola recommends that a set of programs reflecting the goals of individuals in situation-specific locations throughout a country be developed. For this he

THE SYSTEMATIC APPROACH TO MEDIA UTILIZATION IN A LEARNING RESOURCE CENTER BASED COMMUNITY EDUCATION SYSTEM (LRCBCES)[1]


A. GOALS AND CONTEST
What goals are to be achieved? What content is to be studied?
1. GOALS
2. CONTENT
B. CONDITIONS
How, and under what conditions willparticipants seek to achieve goals?
3. STATUS OF LEARNERS
4. TEACHING-LEARNING MODES
5. LEARNING EXPERIENCES
CAMPESINOS
6. PERSONNEL
7. LEARNING MATERIALS AND EQUIPMENT
8. PHYSICAL FACILITIES
9. IMPLEMENTATION
10. EVALUATION
11. IMPROVEMENT
D. OUTCOMES
How well were goals achieved? What needs to be changed?
C. RESOURCES
What resources are required for necessary learning experiences?

[1] Adapted fromBrown, Lewis, and Harcleroad, AV Instruction: Technology, Media, and Methods, Ed. 5. McGraw-Hill, p. 5

proposes a process he labels as "needs negotiation." Three related tasks are seen to be involved:

1. Validating nationally determined needs in community settings, involving study of the world of the campesino "anew every time, in each community, and with the help of the campesino. The campesino must become the focus of all community education."--19 Techniques for studying the real world of the campesino might include developing oral histories (past as well as future) by talking to older residents of the community; surveying existing social institutions (past, present, and possible future roles); taking a community socio-economic census with regard to such topics as occupations, health status, and income status of residents.--19

2. Developing profiles of felt needs. Bhola suggests further that various profiles be developed to describe felt needs of various community groups--farmers, women, youth, and development workers, for example. Members of each group would be "researchers" of their own needs.--19-20

3. Developing integrated needs profiles through needs negotiation. Finally, Bhola recommends the development of what he describes as "integrated" needs profiles reflecting an effective mix of nationally and locally determined needs through a democratic "adversary" process in which issues regarding each possible program emphasis (including that of budget) would be explored and reconciled.

Bhola projects tentatively the probable concerns of the campesino rural poor of the countries with which the LRCBCES Project is concerned as being similar to those of the Third World generally, as follows:

> More production from the fields so that farmers can have more to eat and sell and the nation can use the surpluses.
>
> More equitable distribution of the wealth produced from the fields so that the producers can have a greater share. Also, rural-urban development imbalances should be removed through more equitable government expenditures in rural areas.
>
> Better health for the rural poor through nutrition education and the supply of nutrients where those cannot be produced by the rural populations themselves. Education in preventive medicine and family education so that the poor can make decisions about the size of their families.
>
> Better environment in the rural areas that is aesthetic and ecologically sound and supportable.
>
> Access to education and culture through schools, community education centers, learning resource centers; radio, TV, and other media; songs, dances, crafts, theatre, and film.
>
> Improved skills for the rural poor in agriculture, cattle farming, and decision making, in management and politics
>
> Appropriate technology and employment for the rural areas. The technology has to be labor intensive and regionally supportable and has to create employment for the rural poor within the rural areas.
>
> More dynamic community organization within rural areas to move communities towards self-government and more cooperative organizations.
>
> Greater participation in the local politics and thereby in the national politics through participation in all aspects of socio-economic and political decision making. (Bhola, Harbans S., Learning Resources for Community Education: An Integrative General Model, pp. 12-13.)

Later, in discussing the "community educator's focus," Bhola adds a few other specifics that might also be interpreted as goals:

> Literacy teaching would be a clear-cut example of an educational program. Others that might fall in this same category would be management education, civic and voter education, discussion groups and radio forums and perhaps recreation. (Italics added.)
>
> The community educator . . . can do best by performing . . . educational roles. He may teach general awareness or what it often called conscientization He may teach new and general attitudes and values, sometimes called modernizing attitudes. He may teach problem-solving and participation skills. (Bhola, Harbans S., Learning Resources for Community Education: An Integrative General Model . . . p. 15.)

Selecting Subject Content Related to Goals

Selection of subject matter content for the Systematic Instructional Technology Approach for the LRCBCES program would, of course, require in-depth study of the learning goals discussed in the preceding section. And while in each location---rural, regional, or national center---conditions would be expected to be different, the processes of analyzing subject matter content needs would be essentially the same.

Classification of learning materials collected and organized for the LRCBCES Project by Ofiesh Associates, Inc., was made under the following generalized headings which, to a considerable extent, represent the projected (but as yet to be validated) "subject matter" concerns of those likely to become involved with the LRCBCES program

with which we are concerned here:

HEALTH --- CLASS 1

5 - Sanitation
6 - Body Care
7 - Dental Hygiene
8 - Mental Health
9 - Heart & Lung Dysfunction
10 - Miscellaneous Physical Dysfunction
11 - First Aid
12 - Para-medical
13 - Nursing
14 - Midwivery
15 - Childbirth
16 - Pre-natal care
17 - Infant Care
18 - Contraception
19 - Sexual Functioning
20 - Family Relations
21 - Prevention (disease, poisoning, infection)
22 - Safety

HOME/PERSONAL --- CLASS 2

5 - Energy Saving/Conservation
6 - Family Budget
7 - Consumer Protection
8 - Food Preparation
9 - Nutrition
10 - Menus/Recipes
11 - Sewing
12 - Weaving/Spinning
13 - Pottery/Ceramics
14 - Leather Work
28 - Miscellaneous Homemaking skills

AGRICULTURE/FORESTRY --- CLASS 3

5 - Forestry
6 - Forestry Fire Prevention/Fighting
7 - Soil Analysis
8 - Fertilizers
9 - Irrigation
10 - Weed Control
11 - Pest Control
12 - Land Clearing
13 - Land Use/Crop Rotation
14 - Farm Tools & Equipment (Use)
15 - Erosion, Watershed Management

CROPS --- CLASS 4

5 - Beans/Green & Yellow
6 - Peas
7 - Rice
8 - Wheat/Barley
9 - Melons/Squash
10 - Fruit Trees
11 - Berries
12 - Nuts
13 - Coffee
14 - Tea
15 - Tobacco
16 - Cotton
17 - Soy Beans
18 - Corn/Maize
19 - Hay
20 - Alfalfa
21 - Tomatoes
28 - Miscellaneous Crops

ANIMAL PRODUCTS/HUSBANDRY --- CLASS 5

5 - Dairy Products
6 - Beef Cattle
7 - Sheep
8 - Goats
9 - Hogs
10 - Poultry
11 - Game Animals
12 - Fish/Seafood
13 - Horses/Mules
14 - Dogs
26 - Prevention/Sanitation
27 - Disease Control
28 - Miscellaneous Farm Animals

CONSTRUCTION --- CLASS 6

5 - Masonry
6 - Carpentry
7 - Plumbing (Installation)
8 - Electrical (Installation)
9 - Home Design/Architecture
10 - Industrial/Institutional Architecture
11 - Landscaping
12 - Heating (Installation)
13 - Cooling (Installation)
14 - Waste Disposal/Sewage
15 - Lighting
16 - Land moving/Grading
17 - Wells/Water Drilling
18 - Painting
19 - Roofing & Windows

TECHNICAL TRADE --- CLASS 7

5 - *Gasoline Engines/Motors
6 - *Electrical Motors
7 - *Electrical Generators
8 - Electricity, General
9 - *Motor Vehicles, General
10 - *Hydraulics/Pumps
11 - Farm Equipment (Maintenance & Repair)
12 - *Refrigeration Equipment
13 - Tool Use/Care
14 - Safety
15 - Welding
16 - Woodworking (w/Hand Tools)
17 - *Electric Appliances
19 - Metal Working (w/Hand Tools)

*General Operation, Maintenance and Repair, NOT Theory, Design Manufacture or Construction

ORGANIZATION & MANAGEMENT --- CLASS 8

5 - Public Administration
6 - Voting/Citizenship
7 - Citizens' Groups/Community Action
8 - Farm Management
9 - Co-op Management
10 - Leadership
11 - Small Business Management

EDUCATION --- CLASS 9

5 - Teacher Training
6 - Educational Systems Technology
7 - Media/Communication
8 - Non-formal Education
9 - Career Development
10 - Literacy
11 - Basic Skills & Concepts
12 - Mathematics
13 - Catalogs of Instructional Materials
14 - Educational Journals & Magazines
15 - Word Processing
16 - Second Language

Determining the Status of Learners

The Systematic Approach of Instructional/Educational Technology posits a need to examine the prior status of learners with respect to three things: (1) the nature and

possible influence of socio-psychological factors surrounding them, (2) the present deficiencies and strengths of their "before instruction" grasp of what is to be learned as it pertains to information (knowledge), attitudes and appreciations, and applicable performance skills, and (3) the styles, preferences, and habits of learners with respect to learning--either on their own or with the personal assistance of peer tutors or teachers in small, medium, and large groups.

Significant socio-psychological factors that deserve consideration in planning a Systematic Instructional Technology Approach to LRC-based for campesino learning are numerous. It seems reasonable to characterize the campesions to whom the project is addressed as having many, if not all, of the following characteristics:

* Rural-based, poor farm workers or subsistence farmers and those who supply the labor for producing most of the food produced for the middle and upper classes; economically underprivileged; lacking in the skills of farm management

* Believers of a form of Catholicism whose religious practices and folk beliefs bear little resemblance to orthodox Catholicism; superstitious

* Verbally illiterate; with some aural and visual literacy, but special problems with much of the latter because of lack of experience with pictorial and graphic abstraction techniques and presentations

* Frequently in poor health; relying on folk medicine; without developed concepts of diseases and curing, which they regard as having both natural and supernatural elements; mistrusting scientific medicine

* Members of large, extended families

* Engaged for long hours principally in hand labor, with occasional assistance from animals; users of primitive tools, when available

* Generally without transportation other than "feet" and occasional animals

* Unacquainted with little beyond the immediate environment; likely to write off as unapplicable or impractical examples of life improvements drawn from other cultures

* Living in the countryside or near a pueblo of under 2,000 persons, in self-built primitive housing without running water, electricity, or sewage systems

* Unused to obtaining or communicating information in ways other than by word of mouth; without communication tool

* Without facilities in which to organize and carry out communication or information related activities

* Likely to be linguistically handicapped--speakers of native dialects, surrounded by others who speak only Spanish

* Needing to learn; willing to learn

* Growers of most of their own food, of limited variety, nutritive quality, and yield; barterers, in the village market, with very little selling for cash

* Likely to have a small battery-powered transistor radio, but no (or few) newspapers, magazines, or books. (Adapted, in part, from Hamilton, Roland, "The Campesinos of Colombia, Peru, Bolivia, and Paraguary".)

The on-going LRCBCES program developed for this project envisions, in the first instance, that "before instruction" standings of learner participants will be estimated (as, for example, from records of previous learning performances, literacy statistics, or similar data). Sometimes, of course,

such measurements will come, of necessity, through trial-and-error--as through assignments made, checks of suitability of the materials, or actual performance in activities, or assignments.

The learning styles, preferences, and habits of LRCBCES patrons may be inferred in a number of ways. Given a free choice of several types of materials dealing with the same subject, for example, which of them seem to be used consistently more often than others? What ways of attempting to learn do patrons say interest them most? Which do they like best? Using simple tests, which may range from strictly oral questioning or problem situations involving three-dimensional materials or equipment, what observations can be made concerning the verbal (print), aural (listening), and visual literacy levels of various LRC patrons? Or the verbal, aural, or visual performance skills level of each? Keeping records of such differences will provide future bases for evaluating results of the LRCBCES program and for guiding individuals toward improved learning performance generally.

Selecting Teaching/Learning Modes

Selection of teaching/learning modes in the Systematic Approach of Instructional Technology is a process which may be expected to require professional judgments of the comparative efficiency of three modal patterns---(1) one student, (2) small-or medium-sized groups, and (3) large

or very large groups. The chief purpose of making such judgments is to seek an optimum match of the instructional grouping mode with instructional objectives, the nature of the subject matter, and the preferences of students themselves with respect to such matters.

Each of the three teaching/learning modes may be described on the basis of arrangements and activities in which, using it, learners and teacher/guiders are able to engage:

* One student, working alone with access to a variety of teaching/learning resources and equipment, as well as to teaching/guiding personnel from time to time, may achieve highly individualized learning outcomes. The learning resources especially suited to this mode may range from books (including textbooks and manuals, as well as those of an enrichment type) to motion pictures, audio tapes, or laboratory or on-the-job assignments.

* Small groups (two to ten, for example) or medium groups (ten to thirty, for example) permit varying amounts and kinds of intercommunication among and between members while at the same time they remain small enough to "keep the action going." Either may be used for varying amounts of face-to-face discussion and feedback activities; but they may also involve uses of mediated materials (films, flipcharts, audio tapes, and the like) in the study process. Individualization of study focus or method of study is possible in either, but to a lesser degree in the former than in the latter. Weekend or after-church workshops, offered to small groups, suggest the conducting of one-time or ongoing discussion groups (including radio or television forums), short-term classes, and independent study learning sessions (using learning resource based modules, for example) in the local LRC.

* A large group might be one that is assembled in a lecture hall and comprised of 100 to several

> thousand persons; it might also be made up of several different groups (small or medium groups in groups, for example), separated into smaller groups the same or nearby building and each viewing the same television program simultaneously. A very large group, on the other hand, might be made up of similar individuals (or families) viewing a television program distributed over a wide but local area, or perhaps even nationwide. Provision for viewer feedback throughout the area covered would no doubt be a precondition to any labeling such as congregation as a "very large group", however. (Adapted from Brown, James W., Richard B. Lewis, and Fred F. Harcleroad, AV Instruction: Technology, Media, and Methods, 5th Ed., pp. 8-10.)

Selecting Types and Schedules of Learning Experiences

In the context of nonformal education in rural Latin America, the selection and scheduling of suitable learning experiences may be expected to assume characteristics and dimensions that are responses to the situations in which these things occur.

Selection of learning experiences for specific programmatic purposes, for example, will require consideration, also, of the special advantages and limitations that various possible activities have with respect to certain instructional goals, to learning styles (or limitations or strengths) of certain students, to the subject matter involved, and to the sociological and physical aspects of the environment in which learning is expected to occur. Perhaps an especially significant concern here, is that whatever learning activities are finally chosen, they ought to stress learner activity as opposed to passivity. In any case, however, just as in

formal and informal education programs of developed countries, alternatives are many; in most instances, any one or more of several activities, if engaged in thoughtfully, may be expected to constitute viable learning experiences for purposes intended.

The range of possible experiences through which learning (defined broadly as behavioral change) may occur is emphasized by the following list of activities, for most of which various "media" (materials and possibly equipment) will be required:

"One-Way" Communication Types. Several learning activities may be characterized as essentially "one-way" types because they generally are (but, of course need not always be) either carried out alone or, at the least, without personal interchange with others of ideas and opinions concerning them:

* Reading---chiefly printed verbal materials: books, newspapers, periodicals, charts and graphs with verbal content; handwritten materials; duplicated materials.

* Listening---to a lecturer (who may be a peer or a professional or other person), or to an audio item (a cassette tape; a phonograph record; a radio broadcast); a folk singing presentation.

* Watching and, generally, hearing---sound or silent filmstrips (with presenter participation); video tapes; broadcast TV programs; flipchart presentations; puppet shows; scroll theater presentations; folk or other types of plays; a slide presentation, with live or recorded narration; demonstrations given by others;

* Demonstrating, Showing---modeling performances; exhibiting results of experimental treatments of different plots of land; assembling, disassembling; repairing demonstrations.

"Two-Way" Interpersonal Communication Types. Several activities through which learning may occur are essentially "two-way" in character, involving interpersonal communication of various types:

* Discussing, Conferring, Speaking, Reporting---in small or large groups

* Interviewing---neighbors (who may be LRC users); social agency personnel; priests; others

* Dramatizing---taking part in the preparation of a semi-spontaneous folk play organized around some logically significant theme (fly exertmination, for example); writing original scripts; acting out the plays, in or out of costume;

* Traveling; Taking Field Trips---sending individuals to nearby or central areas to observe, study, and to return and report;

* Exchanging---letters, visits to homes in the same community, elsewhere in the country, or even abroad; items collected; products; audio tapes; still and motion pictures.

* Singing and Dancing---in choral or folk dance groups; sometimes creating original songs and dances.

Creating Materials. Several types of learning experiences may be classified under the heading of "creating materials". Among them are the following:

* Making Audio Recordings---of radio programs, original performances of an audio nature, spoken or read aloud selections, original dramatizations, documentary sounds, interviews, sometimes to accompany other materials (as a set of slides, a book, or other items).

* Making Video Recording and Motion Pictures---of both planned and informal ("targets of opportunity") types; recording video programs; documentary productions (especially with portable video or motion picture camera/recorder units).

* Still Photographing---with still cameras (including instant picture types); coordinated slide or slide/tape presentations; black-and-white picture sequences; documentary records.

* Collecting---real specimens or objects from the local environment or elsewhere, such as classified insect collections, plants, other items; antique or historical items of value and interest.

* Displaying---bulletin boards, sand table displays, three-dimensional model displays, dioramas, and the like---at the weekly market, for example.

* Constructing---three-dimensional miniature or life-size models; a full-scale prototype of a special-purpose shed, for example.

* Graphing, Charting, Mapping---converting local data to readable graphics; plotting locations and distributions on hand-made maps; visualizing flow processes.

* Writing, Editing---reserved for a very few learners, perhaps, but nevertheless significant as learning experiences and perhaps as a means of creating valuable resources for use, locally, by others.

* Reproducing---simple hectograph copies; silk screen prints; wood cuts; linoleum block prints; blueprints.

Other Types. Finally, there are a number of other activities through which learning may occur which do not lend themselves to classification under the preceding headings:

* Manipulating---working models (of pumps, cow stanchions, windmills); engines; real machines; tools;

* Experimenting---in a makeshift "laboratory"; in a special plot of land---with a test crop or using test fertilizers; boiling milk to kill bacteria and viewing effects under a microscope;

* Completing Programmed Assignments---locally- or nationally- or regionally-produced printed or handmade programmed booklets or books; guided use (via booklets or audio tapes) of integrated learning kits or packages;

* Working (On-the-Job) Apprenticing---performing real-life assignments under the guidance of a more expert tutor or supervisor.

* Judging and Evaluating---best animal shows; home-produced ceramic and textile products; best fruits, grains, or tubers.

The scheduling of learning experiences is also of concern to individuals planning a Systematic Approach of Instructional Technology. There are several reasons for this. Perhaps a first reason is that, in real life, certain things occur before others and, to learn about them, the same sequence should be employed. Second, the learning of some things often depends upon prior learnings---learning to read in the technical sense, for example, before learning to read materials dealing with some recommended agricultural practice. But in the nonformal education programs envisioned in the LRCBCES program envisioned by the project to which this report relates, chief considerations with respect to the scheduling of learning experiences will no doubt relate most often to such matters as: (1) the times of the week, month, or year, as well as of the particular day, when members of the target audience can and will participate and when it would be most advantageous for them to do so; (2) the amount of learning that may be expected to accrue with each learning session or activity, which is of obvious

importance in deciding upon the number and lengths of sessions required; and (3) the redundancy and depth desired or required for learners to achieve the specified "satisfactory" level of competence or achievement with respect to the learning goal.

Selecting and Assigning Personnel

Selecting and assigning personnel to manage and present aspects of the teaching/learning program assumes, with the Systematic Approach to Instructional Technology, a significantly important role.

In the more cost-conscious developed country situation, the goal with respect to personnel may simply be to assure least waste of funds and scarce expertness through employing a system that seeks to have well-qualified hired professionals do only professional work and less well-trained, but also paid, nonprofessionals and perhaps even some unpaid volunteers to do what is left to be done---all with optimum cost-effectiveness. One source comments on such efforts:

> The development and production of a learning system require a team of specialists working full-time on the project. Experienced teachers, a subject matter specialist together with a psychologist or a teacher with special training in how children learn are all essential members of the team. Equally essential for the presentation of the system is at least one media expert who may be a graphic artist or someone with experience in radio or television. The selection of media specialists depends on the budget available for the production of the learning system, the nature of the subject, and the technical assistance likely to be available from educational broadcasting teams. The personal qualities of the team are important since they must be able to cooperate not only with one another but also with

> the schools trying out the material at the development stage. Furthermore, they must be willing to accept and act on criticism, severe at times, received from trial schools. (Educational Technology: The Design and Implementation of Learning Systems, p. 21.)

In contrast with what has just been described for developed countries, in the more labor-intensive nonformal education programs of rural developing countries such as those in parts of Latin America, the goal is likely to use as many qualified (or qualifiable) people as possible---each to his or her fullest capacity, and often as a learning experience itself somewhat in the "each one teach one" tradition. This contradiction in the two types of countries seems acceptably justified on the basis of an evaluation of constraints operating in the two situations.

The range of sources for the selection of LRCBCES personnel in the typical developing country rural location may be expected to include some or all of the following:

* The LRC head---who may serve on a volunteer basis, or who may be trained at regional or national headquarters to assume the major role of animateur or monitor for the local program.

* Local skilled leaders---who are respected, capable in one or more special programmatic aspects, and perhaps skilled in discussion techniques, the operation of equipment, the weaving of cloth; priests; teachers; business persons; curanderos.

* Local "inexperts" who are quick to learn---who, though they may not now possess the learning or skills required to lead others, may easily be trained (by local experts, LRC personnel, or assignments for training purposes) to do so.

* Teaching teams---made up of suitable combinations of professionals, paraprofessionals, and even inexpert persons.

* "Outside" people---who may come to the village on regular or rare occasions or who, if invited, would do so---the itinerant health workers, others.

Selecting Learning Materials and Equipment

Having determined goals and content of LRC-based instructional/educational programs, the status of the learners themselves, the appropriate types of learning experiences in which to engage learners, the appropriate teaching-learning modes in which to organize their experiences, and the roles to be played by different types of available personnel, we move to the next step in the Systematic Approach of Instructional Technology--namely, the selection of learning materials and equipment.

The key questions involved with this step are:

* What learning resources (materials and equipment) will be required to arrange and conduct the planned learning experiences?
* On what bases should they be selected?
* How should they be used?

Suggestions regarding the latter question are made in later sections of this report (in Part 2, Chapters V through XI, in which the principal strengths and limitations of each of many different types of media are discussed and examples given of effective utilization practices in developing country situations).

This present section deals only with the first two questions, namely, determining what materials and equipment will be required, and the bases for selecting them.

Part Two of this report classifies, itemizes, and discusses characteristic strengths and limitations, as well as examples of the utilization of each in developing country education programs, of eight media groupings, as follows:

* Print
* Motion Pictures/Video
* Audio
* Pictorial (Still)
* Symbolic; Graphic
* Dramatic; Interpersonal
* Three-dimensional; Real

Schramm makes several points about this range of media:

> (A)lmost any medium can perform almost any instructional or informational function . . . Every medium has its own ways to attract and hold attention, or to remind a student what he has previously learned, or to furnish examples, or explain concepts. This is not to say that one medium can't do a given task better than another. For example, films or television are better than still pictures or radio to show how an internal combustion engine works; radio or tapes are better than certain other media for oral language practice. . . . But other media have been used effectively for these same tasks---for example, the workings of an internal combustion engine can be shown by slides or diagrams, or even words, not only by films or television. . . .
>
> No . . . development worker can change from medium to medium as often as he would need in order to have his first choice of medium working for him at every second of his presentation. . . . (W)hat actually happens is a compromise. Less use is made of media; only one or two points are chosen to be illustrated. Or the medium is chosen that will illustrate as many points as possible---not ideally, but still effectively. Not the best solution, but the most feasible one. (Schramm, Wilbur, Criteria for Selecting Media Systems. . ., pp. 11-12.)

Earlier, in his same paper, Schramm summed up related findings of a group of communications experts who were

meeting "ten years later" to consider criteria for selecting media systems. (See drawing on page 28a.) Said Schramm:

> It seemed to matter less than we had thought which media were used---big or little, broadcast or visual or print. What did seem to matter was how they were used, and especially how they were built into an organization for learning and action. This conclusion has been reinforced by a number of media-comparison experiments which have found more variance within and between the media--the meaning that the way a medium is used, the content, the strategy, often seems to make more difference than which medium is used. It has been reinforced also by studies of development in countries like China, where the organization of local groups for discussion and decision making has seemed to be perhaps the most influential part of a well-integrated communication system. (Schramm, Wilbur, Criteria for Selecting Media Systems. . ., p. 5.)

Referring back to the list of possible learning activities which, conceivably, could be considered and perhaps used in organizing LRC-based learning experiences, one should be reminded of two things especially: (1) that the range of possibilities for learning activities is great, and (2) that media and, often, media equipment of various kinds will be, or could be, involved with each. Setting aside for the moment the fact that especially in developing countries there is surely to be some finite (and probably very low) amount of money to be used to buy the required learning resources and that in any event their availabilities will, of necessity, be far from ideal, one might still ask: What principles apply to the process of seeking an optimal match between media resources and other elements of programs developed in consonance with the plan

ABSTRACT

PRINT:	Texts, Magazines, Booklets, Newspapers, Duplicated Materials, Microfiche, others
SYMBOLIC GRAPHIC:	Chalkboards, Clothboards, Displays, Bulletin Boards, Charts, Maps and Globes, Mobiles, Posters, Flashcards
AUDIO:	Radio Programs, Audio Cassettes and Reels, Disk Recording, Telephonic Instruction, others
MOTION PICTURE/ VIDEO:	16mm and 8mm Films, Video Materials (Locally-Developed Broadcast)
PICTORIAL (STILL):	Filmstrips, Slides, Large Transparencies, Opaque Projections, Flat Pictures (Photographs), Drawings, Paintings
DRAMATIC INTERPERSONAL:	Folk Drama, Plays, Puppetry, Games and Simulations, Pantomimes, Role Playing Markets, Fairs, Swapshops, Telling, Discussing
THREE DIMENSIONAL REAL:	Fieldtrips, Demonstrations, Specimens, Collections, Models, Experiments, Exhibits, Dioramas, Sandtables, Toys
THE INSTRUCTIONAL TECHNOLOGY PROCESS FOR MEDIA UTILIZATION:	•Establishing Goals •Determining Content •Determining Status Alternates •Selecting Teacher-Learning Modes •Selecting Learning Experiences •Selecting Personnel •Selecting Learning Materials and Equipment •Locating Adequate Facilities •Implementing the Instructional Program •Evaluating the Instructional Program •Improving Instructional Program

CONCRETE

SIDE C

A taxonomy of media and the instructional technology system available to the LRC-BCES program.

for a Systematic Approach to Instructional Technology?

The following criteria with respect to materials are several (of many) that are proposed as one answer to this question. Materials selected should be:

* Pertinent to the subject studied and to the goals of that study, as well as suitably "fitted" to the nature of the content itself.

* Of such a nature that learners who use any item are able to actually experience what it is intended that they experience, without encountering barriers of speech (unfamiliar dialect, prounciation), or meanings (unfamiliar words, expressions), of geography (inability to come to the learning experience because of distances involved), of sophistication in communication skills (media presentations in styles and formats with which users are unfamiliar), learning; of complicated and expensive machinery (projectors, or recorders, for example, and perhaps operators of them, when such items are not in the realm of possibility for the locale of use); and others.

* Capable of being experienced (projected or heard, for example, which assumes power, darkening, viewing spaces) in the environment in which they will be used.

* Appropriate for use in the instruction/learning mode selected, such as television or radio programs for simultaneously-broadcast, super large group coverage, sound filmstrips for small groups, or print or audio cassette items for individual study.

* As simple as possible to obtain and use, which means, in many cases, without the necessity of an accompanying and often very expensive (and perhaps complicated or even unavailable piece of equipment being necessary in order to experience the medium at all.

* Capable of eliciting active participation rather than an inert, passive response to the learning experience (causing the learner to do something--- more than sitting and listening or watching).

* Sufficiently narrow in treatment and content to provide an emphasis in areas of learning where media contributions are especially needed and appropriate.

* Both affordable and cost-effective, but not necessarily the least expensive of all media that could be provided for the purpose.

* Compatible with and supportive of any already-institutionalized, and functional, information access and dissemination systems administered within the country or area of the country involved.

The appraisal-selection process observed by Ofiesh Associates, Inc., for this LRCBCES Project involved application of six criteria which bear on many of the principles just cited:

* Appropriateness of the subject. Does the item fall into one of the established subject areas?

* Level. Is the item intended to be used by people on approximately the same level of ability as that of our proposed audience?

* Language. Is the item written or produced in the Spanish language or in a language normally spoken by a significant part of the target population? If not, how difficult would it be to produce a translated version of an item which is not already in an appropriate language?

* Cost. Is it likely that an LRCBCES administration would be willing to pay the asking price for this item?

* Availability. Are there any distribution restrictions that would make it difficult for the LRCBCES to obtain this item?

* Uniqueness. How many other items are available which could accomplish the same ends as this item? (Ofiesh Associates, Inc., "Status Report: LRCBCES Contract", June 30, 1977, pp. 1-2.)

Choosing (or Developing) and Using Facilities

The next stage of the Systematic Approach of Instructional/ Technology pertains to matters of choosing, or developing, and using physical facilities to fullest advantage. As usual, decisions at this level must take into account actions which have occurred in preceding stages, as well as of the model adopted for particular national, regional, or local LRCBCES program.

Suffice it to say here that regardless of the exact nature of LRCBCES model adopted, a number of physical facility guidelines will apply. Ideally, and insofar as possible and feasible, facilities in or available (outside) to the LRCBCES program should accommodate:

* Processing of acquiring, treating, storing, and retrieving resources (materials, equipment, records of community or other resources, etc.) assigned to the LRCBCES program.

* Multiple arrangements (and rearrangements) of learning spaces for individuals who use the LRC who may engage in learning activities as individuals, in small groups, and sometimes in large groups.

* Maintenance of the various types of equipment required for projecting, auding, or producing teaching/learning resources.

* Laboratory-type and workshop activities.

* The fact that considerable learning activity may occur in homes of LRC users--in family groups or in isolation; also, that many of the stimuli for learning will come from out-of-the-LRC locations: e.g., the demonstration agricultural plots in various sections of the countryside (which will require traveling to observe them.)

* Networks of contacts and study arrangements, as feasible---such as organizing a scheme for routing materials, in sequence, to various users, utilizing Sunday church attendance or market days as the point/time opportunity for this purpose.

* Loans of media-related equipment and media for off-site users.

* Local media production and media-related creative activities (script writing, dramatization, model construction, and the like) geared to the aim of increasing the communication capabilities of individual participants and in creating genuinely useful resources of a local nature.

* The "taking out" of some learning experience resources, as with: (a) mobile units specially fitted with demonstration or test equipment, media equipment, and materials geared to special campaign purposes (fly elimination, family planning, improved agriculture, etc.); or (b) setting up special displays, puppet shows, demonstrations and the like in the village square, at the market place, in front of the local church, the community laundry facility, or elsewhere.

Implementation, Evaluation, and Improvement of the Plan

Implementation, evaluation, and improvement, which occur in the final stage of the Systematic Approach of Instructional/Educational Technology will be discussed briefly together. Experience gained from the operation of the LRCBCES program should be a period of gathering data from which to make later evaluations of total program effectiveness as well as of the working of its parts. Such data may serve as the basis for later evaluations related to such matters as:

* Obvious faults in prior estimates of learner interests and needs; of anticipated distributions of learner interests in LRC-related studies; and similar matters

* Strengths and deficiencies in the LRC media resource (materials and equipment) collections and services

* Strengths and deficiencies in the scheduling plan for use of LRC facilities and resources, including personnel

* The extent and quality of community acceptance of and participation in the LRC-based community education/development program

* Strengths and deficiencies of the LRC's and the community's physical facilities in which to offer the program that was planned to be offered

* Strengths and deficiencies in the personnel staffing and utilization plan that had been adopted and the possible need to reassign, retrain, or replace certain staff members

* The need for new learning opportunities and study offerings and for improving teaching/learning arrangements within the LRC

* Costs and cost-effectiveness of the entire LRC program and its parts, leading to some judgments as to which parts should be eliminated or cut back, which should continue at present levels, and which should receive additional support.

III. THE BROADCAST MEDIA

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. 9. "Television" (pp. 238-243; 247-259).

Brown-Lewis (Eds.), Instruccion Audiovisual: Manual de Ejercicios Intensivos. 41. "Broadcast Revision"; 54. "Television Receivers".

* * *

The ubiquitousness of the broadcast mass media--radio and television--and the degree of acceptance both have achieved in formal and nonformal of developing countries throughout the world, make them deserving of special, and separate, treatment in this report.

Wells comments:

> Radio and television have been used extensively in developing countries; foreign aid donors have tended to favor radio and television; radio and television have a high degree of centralization and coordination, although these are not necessarily positive characteristics, and some of the more individualized forms of instructional technology, such as computer-assisted instruction, are expensive and in experimental stages in developed countries. (Wells, Stuart, Instructional Technology in Developing Countries. . ., p. 7.)

But some of the earlier, rather unbridled optimism about broadcast mass media as the media for developing country education now appears to have been lost. Hornik et al., for example, pointed out that:

> There is a growing faith that the mass media can provide many of the same kinds of information and services as do the traditional agencies and do so just as effectively and at far less cost. . . . Unfortunately, the evidence (for this) is by no means clear. (Hornik, Mayo, and McAnany, The Mass Media in Rural Education. . . . ., p. 77.)

Correcting Some Past Mistakes

Some past mistakes made in using mass media in developing country education and information programs have been identified. In general, they have been cited as:

* Emphasis on big national programs with centralized control and direction to maximize scarce management and technical capabilities.

* A view of media's primary function as the transmission of information from outside specialists who are assumed to possess it to rural people who are assumed to need it.

* A view of effectiveness which was primarily associated with the 'right' choice of media or media combination.

* An emphasis in message content on new values, ideas, and concepts, often of the Western 'consumerism' type, which were rarely linked to existing values, ideas, and concepts.

* An emphasis on the role of the communication specialist as essentially a technician, expert in the use of certain technical communication instruments. (Perrett, Applied Communications Technology in Rural Development, p. 8).

Perrett also said earlier:

> (T)he mass media (radio and television) can be used effectively alone (in developing country work) under certain circumstances. But enough of these conditions will only occasionally prevail with the rural poor in less developed countries at any given time to ensure adequate effectiveness of development projects. Thus the situation of use will have to be carefully defined, and in most instances it is advisable to attempt to find low-cost ways of planning local level personnel support as well as mass media activities. (Perrett, Communication With the Rural Poor, p. 11.).

Perrett spells out the nature of those "certain circumstances" necessary to achieve results desired from mass media utilization, as follows:

* A localized and economically and socially homogeneous target audience.
* Familiarity by those in charge of the campaign program with the nature of the target population.
* Highly credible mass media sources.
* Opportunity to repeat media messages over a long period of time and to obtain reinforcements of them through several different media channels.
* Use of simple (not complex) messages that present only one main idea or main issue.
* Use of simulations of some of the key elements of person-to-person communication (question-and-answer approach, dialogue, short dramatizations, etc.). (Perrett, Communication with the Rural Poor, pp. 8-9.)

Perrett continues by describing still other conditions that influence the effectiveness of mass media communications. He claims that they are most likely to have the desired impact when:

* Changes sought through the campaign do not involve possibilities of social condemnation or other social or economic risks.
* Changes sought represent an already existing felt need or practice with which the target audience is already familiar.
* Benefits of the proposed change, in relation to risk, are great and when the time lag between action in the suggested direction and the observable benefit is short.
* The infrastructure needed to achieve the action is operating and in place and the target audience knows of it.

* The general environment in which the change is sought is friendly to the idea of change. (Perrett, Communication with the Rural Poor, p. 9.)

Strengths of Broadcast Media

Several widely acknowledged strengths are attributed to broadcast media for use in development work. They are held to be:

* Speedy. Programs may be produced, distributed widely, aired, and changed in much less time than would be required for other media channels.

* Far-reaching. Broadcast programs reach large numbers of listerers/viewers.

* Simultaneous. They reach these large numbers at the same instant, without delay, and without intervening distortions of meaning, emphasis, or coverage.

* Strikingly cost-effective---if assessed on the basis of persons reached with the messages.

* Capable of being "experienced" (heard, seen, understood) by relatively illiterate audiences.

* Dramatic, interest-catching---capable of producing high-affective impact upon viewing audiences. Rogers and Shoemaker emphasize this point, contending that different kinds of communication channels serve different roles during different stages of the innovation process. Mass media channels are especially important as means of changing attitudes toward innovations. They are also more important, relatively, than traditional interpersonal channels for early adopters than for later adopters of innovations. (Rogers and Shoemaker, Communication of Inventions: A Cross-Cultural Approach, p. 16.)

In addition, the broadcast media have shown they can be used effectively in development campaigns to create awareness of issues. But Perrett interpolates the caution: "However, they accomplish change of habits or practices

with the support of interpersonal communications, meaning that, in most cases, both should be part of a development communication strategy. (Perrett, Communication With the Rural Poor, p. 6.)

Finally, broadcast media are apparently capable of paving the way for improved self-learning following an initial campaign effort. Concerning this quality, Schramm concluded:

> Mass media can be of great help in all forms of teaching, adult education, and skills training; . . where teachers, trainers, and monitors are scarce, the media can carry a proportionately greater share of the instruction; . . once the basic skills have been learned, the media can provide further opportunities to learn. For example, once the basic steps have been taken into modern agriculture, radio and print can provide a flow of helpful information on practical farming. Once a man has learned the basic skills of electronics, he can learn more by reading. Once a man has learned to learn, he finds it easier to learn without supervision or direct assistance. (Schramm, Wilburn, Mass Media and National Development. . ., p. 144.)

Limitations of Broadcast Media

Several limitations of the broadcast media have been identified, all of which should be taken into account by developing country educators and program participants. Perrett, for example, says that they:

* Are essentially "one-way" media. Because of their top-down operation, they tend to allow little local participation and to reinforce hierarchical patterns of learning and action, with little ability to create self-reliant and self-sustaining change among the poor.

* Tend toward "centralized" control of program material---which often does not respond to nor reflect actual needs of underpriviledged members of society. Those who control mass media often have little knowledge of the poor or understanding of their problems.

* Are often "over the heads" of the poor in the audience. The language used, ideas presented, and intellectual level that mass media are geared towards, tend to make them more comprehensible to relatively advantaged (than to the disadvantaged) sectors of the population.

* Tend to be more accessible to the richer sectors of the population, for both economic and geographic reasons.

* Especially in the case of television (but not so greatly with radio) they require heavy investment in equipment and in the training of personnel to operate, maintain, and provide suitable programs for it. (Perrett, Applied Communication Technology, p. 12.) Concerning this latter point, Wells says:

The problems created by a heavy reliance on foreign aid and personnel are magnified by technology systems. The large investment in sophisticated equipment increases the necessity to use foreign capital and foreign personnel. Many donor agencies promote technology systems and insist on the utilization of foreign personnel for program planning and evaluation. Furthermore, much of the equipment in the technology system must be imported. If the recipient country is responsible for equipment replacement, a drain on resources may be created in the future and result in foreign exchange problems. (Wells, Instructional Technology in Developing Countries, p. 157.)

* Often tend to be broadcast during least desirable times of the day, when the airwaves are not in demand for commercial purposes.

* Are in many ways less flexible than other media to which nonformal educators have access. Concerning this point, Schramm says:

(W)hen wide coverage is necessary, the most efficient way to get it, especially if one wants a live presentation, is with one of the broadcast media.

> But this requires a trade-off against local control of the presentation. Ideally, a development worker . . . would like to be able to schedule a broadcast when he is ready for it; to stop it at any time in order to ask questions or talk about it; to play parts of it over again to be sure that the content is understood or remembered. He can do that with film, slides, tapes, print, but not with radio or television. They are centrally scheduled land controlled, and have to be until we become rich enough to have recording machines everywhere and can record what is broadcast. (Schramm, Wilbur, Criteria for Selecting Media Systems. . ., pp. 13-14.)

Overcoming Limitations of Broadcast Media

The literature reviewed for this report suggests the wisdom of opening several steps to assist in overcoming the foregoing limitations of using broadcast media in development work:

* Experiment with the setting up of more "local access" radio stations, in outlying areas, to cater to special needs, interests, and scheduling requirements of non-urban areas.

* Program such stations with tape network items (drawn from appropriate offerings of similarly situated stations elsewhere in the country; centrally produced especially for interstation circulation, somewhat on the order of a "state library"; locally-produced "nonslick" programs involving peer groups and individuals within the listening area.)

* Give more attention to the special contributions to development work that may be expected to derive from efficient use of the broadcast media: spot broadcasts to promote awareness of program emphases; broadcasts directed toward small listening groups presided over by peer monitors; and the like.

* Coordinate with broadcast programs uses of other inexpensive media forms---such as newspapers or booklets---in combination with mass media presentations.

* Use existing broadcast facilities to serve, during ordinary nonbroadcast hours, as program distribution facilities for the area served. Under such a plan, a regional station could broadcast programs for the purpose of having them recorded and preserved temporarily in local LRCs for later small-group or independent study use---for as often and as long as necessary.

* Strive to move away from a purely one-way information flow arrangement with mass media and toward a two-way flow type with local response to and initiation of program materials.

Examples of Successful Radio Broadcast-Oriented Nonformal Education Projects

Several examples of successful campaign-related uses of mass media broadcasts will provide insight into their values for developing country work. Those given here are placed in the Dominican Republic (Radio Santa Maria Project); Guatemala (Basic Village Education Project); Colombia (Accion Cultural Popular, Radio Sutatenza); Ecuador (Radio Mensaje Project); and India (School-on-the-Air Project). Precise descriptions of each follow:

Dominican Republic (Radio Santa Maria). Begun in 1970 and still continuing, this program is oriented toward rural and urban lower-status adults. Media employed include radio, print, and interpersonal communication. The objective is to deliver primary and intermediate education that would be better and cheaper than that provided by the regular school system. The program is modeled after Emisora Cultural de Canarias (Spanish radiophonic school). It employs three educational aids: workbooklet texts, radio broadcasts, and field teachers---all geared, as possible, to real-life needs and integrating principles of lifelong education. Daytime and evening radio programming include music and non-formal programs on agriculture, health, and family planning. But from 7:00 to 9:00 p.m., Mondays through Fridays, graded lessons are broadcast (not

only on Radio Santa Maria but on five other stations, thus providing nationwide coverage for them). Four grade levels are broadcast each evening (half-hour each); four 7-minute lessons are spread over an hour's broadcast, with the remaining time given to students to perform study and worksheet assignments. Teaching is done by a two-person (male, female) team with teammate assumption of student-teacher roles---asking questions, pausing (to allow radio audience to develop its own answers), then giving answers. On Saturdays, students congregate in groups of 20 or so at local centers for two-hour sessions with a field teacher. Worksheets are taken up, corrected, and handed back the next week; students ask questions; the central theme is discussed. Students also buy the next week's packet of six to eight worksheets (25¢ U.S. of which the field teacher keeps 15¢). Approximate enrollment (in 1975) was estimated at 20,000/year---mostly unmarried 18-year-olds. Field teachers are also young, but they must have completed several years of schooling beyond the levels they teach. The RSM curricula are not rote learning-based; they stress education as a tool to help participants meet and cope with problems of daily living in their own environments. Results, using standardized tests, show that generally, RSM students score as well or better than those educated by conventional means. Enrollees seem also to be stimulated to engage more frequently in community efforts than their traditionally educated counterparts. RSM students also appear to require less time to finish their work (than in conventional instruction), thus enabling many to complete the equivalent of eight years of work in four. (Adapted from Project Profiles, Washington, D.C.: Clearinghouse on Development Communication, 1977.)

Basic Village Education (BVE) Project: Guatemala. Initiated in 1973 and still continuing, this is a five-year experiment aimed at using several different communications media to change farming practices and thereby increase their production. Its plan calls for testing the cost-effectiveness of various combinations of communications media (radio, interpersonal communication, forums, graphic materials, etc.) Two radio stations broadcast eight hours daily (5-9:00 a.m.; 4-8:00 p.m.), Monday through Saturday. The program mix is approximately 80%

music, entertainment, and other materials and 20% to discussions of farming, which consists of a 20-minute "agricultural magazine", radio novels, a question-and-answer interview with an agronomist, and 30-40 spots that carry agricultural messages. Four different communications treatments are employed: (1) radio only; (2) radio with village monitor, who is briefly trained, visits four or five villages where he holds late afternoon forums in which he uses audio cassette recordings of previous radio programs, flipcharts and posters to stimulate discussion, take-home sheets, and, sometimes, demonstration land plots; (3) low-level assistance from agronomists who serve roughly 600 families each---who meets with monitors, helps conduct plot demonstrations, identifies local crop-production problems, advises farmers, and furnishes feedback from the field; and (4) monitors alone in areas not reached by the broadcast programs. Results show that radio alone seems to be having a significant impact on farmers' behavior; monitors and agronomists appear to help, also, by reinforcing radio messages. Chief changes appear to be better selection of seed corn and use of fertilizers at flowering and seeing times; fungicide use has also increased somewhat. (Adapted from Project Profiles. Washington, D.C.: Clearinghouse on Development Communication, 1977. See Also The Basic Village Education Project: Third Interim Evaluation Report. See also John R. Davidson, The Basic Village Education Project in Guatemala.)

Accion Cultural Popular (ACPO): Colombia. Begun in 1947, ACPO seeks to provide basic education to subsistence farmers. It utilizes radio, combined with printed materials and interpersonal communications supported by slides and films. It is virtually self-supporting; only 7% of its funds come from the government, with some other grants from foreign donor agencies. Programs aired include: literacy, numeracy, health building, hygiene, economics, and personal development. It employs and trains a staff of 900; sponsors correspondence services; publishes a weekly newspaper; operates a printing press; offers short courses; sells hundreds of thousands of books to campesinos each year; sends education and entertainment vans all over the area to show films and pass out printed materials; and develops new audiovisual materials and curricula. The ACPO radio school serves 22,000 different study groups, largely organized by local

campesinos who call meetings, keep records, manage discussions, and counsel. Learning cells rely on six cost-free textbooks which are a record of the broadcasts. Radio Sutatenza (the chief radio outlet) now reaches 140,000 campesinos. ACPO has trained more than 11,000 community organizers. At least 15 Spanish-speaking countries have also modeled educational radio programs after the ACPO plan. (Adapted from Project Profiles. Washington, D.C.: Clearinghouse on Development Communication, 1977.)

Radio Mensaje: Ecuador. Initiated in 1972 and still ongoing, "Radio Mensaje: Ecuador" seeks to reach illiterate Ecuadorian adults by radio to improve their basic literacy skills and to move them toward more effective and satisfying participation in daily life. The chief media utilized are radio and audio cassettes. A full description of this project appears later, in Chapter VII, "Media Utilization: Audio").

School-on-the-Air: India. Initiated in 1975, and still continuing, "School-on-the-Air: India" seeks to impart to Indian farmers a systematic knowledge of agricultural science via the medium of radio, supplemented by correspondence. The program is under the aegis of All India Radio (Calcutta). The strategy of the program has been to reach through radio programs literate farmers who would be willing to serve subsequently as "contact farmers" and to attempt to impart to others the information they themselves received. The program broadcast six courses between late 1975 and early 1976, each developed as five half-hour lessons. Trainers prepared the lessons and read them on the air each Sunday between 7:00 and 7:30 p.m. Voice delivery was slow, so farmers could jot down points; some things were repeated several times. Questions were read at the end of each program; listeners mailed in responses (but they also had time to request clarifications, if required). Trainers marked papers and returned them to listeners; at the end of the year each participant received a certificate of appreciation along with his grades. In all, only 114 farmers participated in the correspondence course during the first year, but All India Radio believers that a much larger number of farmers has been benefited by the broadcasts. Most participants were between 20 and 29 years of age, of middle income level. Overall, participants generally took three of the

> six courses offered. Results of the first year's evaluation have led to subsequent changes in curriculum and in broadcast times, with the result that there has been greater participation than before. (Adapted from Project Profiles. Washington, D.C.: Clearinghouse on Development Communication, 1977.)

Uses of Broadcast-Oriented Television Programs in Nonformal Education Projects

To date, the record for utilization of broadcast-oriented television programs for nonformal adult education appears to be a mixture of success and failure. Gunter comments on early efforts at providing experimental televised education programs during the 60's (of which many are still in operation) in Colombia, Ivory Coast, El Salvador, and Samoa:

> These programs yielded many valuable lessons for today's planners. However, they derived from a model of development which has since lost much of its persuasiveness. In the 1960's, the 'trickle-down' theory enjoyed broad acceptance from national governments and international agencies. Development was conceived largely as a process of urbanization, industrialization--indeed, of westernization. Development was to be achieved by building the infrastructures characteristic of modern industrial societies. One of these infrastructures was a hierarchical, elite oriented formal education system. Expansion and reform of this system would facilitate identification and further training of managers and technicians, whose efforts were expected to create benefits that would trickle down to the poor masses. One of these benefits would be exposure at least to primary education. . . TV made it possible to increase dramatically the quantity of educational opportunity, and to democratize access to education in the process. TV also enabled countries to increase the quality of classroom education, by presenting top-rate teachers on the screen, backed up by the best TV producers and curriculum developers . . . While the cost of such an approach seemed high, the product was of great value to the nation. . . Furthermore, per pupil costs could be made very low by increasing numbers of children reached by ETV.

Of course, there were criticisms of these television projects. The technology often forced dependence upon foreign suppliers and foreign technicians. There were serious economic and logistical problems. . . Countries often had trouble mastering and transcending the technology of TV. . . In addition, . . . there were questions regarding the feasibility and appropriateness of extending formal education to rural and poor masses---most of whom would never gain entrance to secondary education. . . . (Gunter, "Trends in Development Assistance Affecting Educational Media," n.p.)

The Satellite Instructional Television Experiment (SITE: India. The Indian SITE Experiment commenced in August, 1975. Yash Pal, of India's new Space Applications Centre (Ahmedbad, India) describes the situation:

. . . when 2400 TV sets came alive in as many small villages receiving programmes directly from a high-power geosynchronous satellite located 36,000 km (approximately 22,000 miles) over Kenya. The TV sets . . . were placed in parts of six states of India . . . The programs beamed to these villages were in local languages, in addition to common programs in Hindi. . . .

The programs contained information on agriculture, animal husbandry, health, hygiene, and other development concerns in addition to entertainment, in the local idiom. They were made in specially built studios. . . The programs were beamed to the satellite from Ahmedabad (prime station) and Delhi. . . The ATS-6 satellite used for this experiment (was) provided by NASA for a period of one year.

The general objectives of the experiment (were) to:

* Gain experience in the development, testing, and management of a satellite-based instructional television system, particularly in rural areas, and to determine optical system paramaters;

* Demonstrate the potential value of satellite technology in the rapid development of effective mass communications in developing countries;

* Demonstrate the potential value of satellite broadcast TV in the practical instruction of village inhabitants;

* Stimulate national development in India, with important managerial, economic, technological, and social implications. (Yash Pal, Some Lessons During the Setting Up of Site, n.p.)

Although at the time of preparing this report no formal evaluation had been made of the SITE Experiment, Karnak provides an interim assessment, saying:

> Without doubt, SITE was a great success from a technological viewpoint: the direct reception systems were developed, manufactured, and installed. . .and maintained to provide over 90% availability; the earth stations worked exceedingly well. . ., and all of the other hardware. . .worked without a hitch. The required hours of programming were ready in time. . .
>
> The most important part of SITE was the social experiment itself: the social impact on the villager of one year's exposure to SITE. Some of the major findings. . .:
>
> 1. Statistically significant and unexpectedly large gains in information, awareness, and knowledge in areas such as health and hygiene, consciousness, overall modernity, and family planning.
>
> 2. Greater gains for the underprivileged in rural society, such as females and illiterates; increased gains with increased television viewing.
>
> 3. Lack of statistically measurable gains in agriculture--due, perhaps, to need for greater specificity and localization of program materials and that such changes are bound to be slower than some others measured.
>
> 4. Among children, no significant gains in scholastic achievement, but very positive gains in the attitude of seeking knowledge and information from sources other than conventional classroom teaching.

5. Continuous generally favorable audience reactions to instructional programs as compared to socio-cultural programs.

6. Especially successful in attracting a female audience. (Adapted from Kirin Karnak, "SITE and Beyond", in Educational Media Yearbook: 1978, James W. Brown, Ed., n.p.)

The Future of Broadcast Media in Developing Country Nonformal Education

Opinions of futurists differ with regard to eventual developments in uses of broadcast media (radio and television) in developing country nonformal education. Gunter makes a few predictions:

> The spread of radio as the mass medium of the Third World will continue. Television will continue to grow---perhaps even at a faster rate---but from a much smaller urban base. Television will be used in three basic ways. In many cases, (development) project planners will build upon existing infrastructures by reaching urban populations who already have access to the medium, or by using an existing ETV system during non-school hours. Localized small-scale broadcasting is a possibility in some contexts, through use of half-inch video and 8mm film technology coupled with low-powered transmitters. However, the cost of receivers and power sources will limit this type of application. A third type of project may involve massive applications that are tied into satellite distribution of TV and other forms of communication. An example of this third type of project is the recently completed Indian SITE (Satellite Instructional Television Experiment). . .
>
> The coming generation of high-powered communications satellites may accommodate very low-cost ground stations. This might end the often unacknowledged reception problems which plague mountainous regions. In a more revolutionary vein, satellites may allow for two-way communication of voice, text, and data as well as radio and TV reception. Such ground stations may prove economically viable not only for regional capitals, but for market town as well . . . (Gunter, "Trends in Development Assistance Affecting Educational Media", in Educational Media Yearbook: 1978, James W. Brown, Ed., n.p.)

Filep adds further observations concerning the future of satellite technology generally saying:

> The artificial satellite promises to be the most important communication development since the computer, yet it is not obvious which, if any, particular set of regional and national problems can be solved by the use of this relatively new technology. . . (T)here is a risk that the phenomenon of "media-centrism" will be applied to the communication satellite. The temptation to adopt satellites for any situation involving communication problems is great. However, such problems may be solved as effectively by the use of alternative approaches and technologies, perhaps in a much less complicated or expensive manner . . . .
>
> (Still), numerous problems have been identified that can be at least partially resolved by the appropriate involvement of communication satellites. . . . Recently, less expensive, high-grade, two-way exchanges have been proposed and tested with success in educational and medical experiments in Alaska and the Central and Northwest Pacific. . .linking remote locations with two-way conversational exchange capabilities and high-grade color television . . .
>
> The greatest present-day needs in satellite communications are: first, specific need recognition and policy development; second, design of comprehensive projects or experiments to test the applicability of communication satellites to specific problems; and third, formative and summative evaluation of the current and proposed projects and the subsequent effects of these new communication technologies on the users. . . . (Robert T. Filep, et al., Communication Satellites and Social Services, ii-iii.)

IV. MEDIA AND THE LRCBCES APPROACH

Reading: Brown, Lewis, and Harcleroad, Instrucction Audiovisual: Tecnologia, Medios, y Metodos. 2. "Como Elegir, Usar, y Producir Medios" (pp. 22-47).

Brown-Lewis (Eds.), Instrucction Audiovisual: Manual de Ejercicios Intensivos. 2, "Como Aprender a Manejar Equipos Audiovisuales"; 3, "Como Crear Recursos Educativos"; 4. "Planeacion del Uso de Medios Educativos".

* * *

While the broadcast media (radio and television) discussed in the preceding chapter have tended in the past to occupy the lion's share of attention as "large-scale media" for in-school, informal, and nonformal education in developing countries throughout the world. There are numerous signs now that the situation is changing. Coombs says, for example (in commenting on a speech by Henri Dieuxede, UNESCO, Paris):

> Communication unfortunately still means mass media to many of us---a top-down broadcasting model. But the folk media and the market-place media are real communication opportunities. . . (In Mayo and Spain, Communication Policy and Planning, p. 53.)

Changing Conceptions of Media in Development Work

Dieuxeide further emphasizes his own perception of what ought to happen with respect to media applications in educational activities within developing countries:

> Several criteria may already be discerned in the development of strategies for new educational forms: place your faith in the use of labor rather than capital, respect cultural authenticity in form and content, use endogenous invention, and use local resources. General applicability, both human and technical, is another. . . Innovation and creativity can circulate more easily than goods and should be encouraged to do so. . . . Whenever possible, the development of simplified techniques should be encouraged within general learning strategies in order to provide the basis for new educational configurations adapted to the country. . . . (In Mayo and Spain, Communication Policy and Planning, p. 51.)

But perhaps the chief stimulus toward recent increased attention given by developing country educators to the less expensive, less complicated media, has been their disillusionment with "imported" educational programs generally. Concerning this, Dieuxede was reported as saying:

> Decision-makers in developing countries are increasingly questioning the utility of using imported models of education. Indeed, some feel there is strong evidence that European-style education has been strongly counterproductive. Educational leaders in poor countries are beginning to feel understandably skeptical about the validity of high-investment, labor-saving aids to the teaching process; even though they are desperately short of teachers and material they tend to wonder whether they can afford the remedies proposed by sophisticated technologies. The difficulty of financing costly equipment, the reluctance of officials in developing countries to commit themselves to a heavy drain of hard currency, and an insufficiently high level of technological resources to insure smooth operation of the system--- these are only some of the limitations in adopting advanced communication systems. (In Mayo and Spain, Communication Policy and Planning, p. 50.)

Perhaps this same tendency toward "top-down", somewhat irrelevant education detected in nonformal education uses of

mass media seems to have carried over to innovative uses of other less glamorous as well. Bowers expressed strong views on this subject:

> In many countries the situation in nonformal education could be summed up as sporadic and incompetent use of inadequate media. Extension workers and instructors are seldom given practical training in handling media. Few of them are able to make creative use of even the simplest aids, such as blackboards, flannelgraphs, and flipcharts; still fewer can manage the more complicated and mechanical hardware like slide- and film-projectors. All over the world, mobile cinema vans are rushing around projecting films to uncomprehending audiences. How seldom does a rural film-show run without the generator passing out, the projector blowing a fuse, or the film coming unspliced. The films, which are usually procured from abroad, bear little relation to the problems and interests of the local people and seldom convey any useful knowledge. Rural broadcasting services are often no better, even though they are produced by local radio stations. The man behind the microphone generally talks in technical jargon, far removed from the everyday language of his listeners, and his experience is often irrelevant to theirs. Even where there are potential readers, books and written materials in their language are often unavailable, or if available, generally unattractive, uninteresting, and even unintelligible. This depressing situation has led to a reaction in many developing countries against the use of media. This sometimes takes the form of a deliberate policy not to use them; more often their use goes by default. (Bowers, The Use and Production of Media in Nonformal Adult Education, pp. 2-3).

Appropriate Instructional Technology

A new concept, "appropriate instructional technology", thus seems to be a more suitable alternative than present models to guide applications of media in developing country nonformal education. It seems also to fit well into the pattern/plan for the LRCBCES program itself. But what is

an "appropriate technology"? Darrow and Pam provide one definition:

> "Appropriate Technology" is a term that represents a particular view of society and technology. It suggests that technology is neither neutral nor does it evolve along a single path. It recognizes that different cultural and geographic groups will have different technologies that are appropriate to their circumstances; that technological self-determination is essential to cultural identity (and political independence). It suspects that the only wise technologies are those which seek to accommodate themselves to the biological environment within which they are used; it is called, among other things, "environmentally appropriate technology". It assumes that the purpose of economically productive activity is to produce what is determined by need, in an enjoyable, creative process; not what is determined by endless greed, in an alienating, repetitive production process. It stresses that every society has a technological tradition and that new technologies must grow out of this tradition. And it presumes that the only development that makes sense is development of the people and their skills, by the people and for the people. The term 'appropriate technology' suggests that there is such a thing as <u>inappropriate</u> technology. . . . the very origins of the movement come from the Ghandian tradition of local production for local needs. (Ken Darrow and Rick Pam, <u>Appropriate Technology Sourcebook</u>, pp. 10-11.)

Extending this concept to its application as an "appropriate <u>instructional</u> technology" seems also to be quite consistent with the principles of the Systematic Approach of Instructional Technology discussed in Chapter II. What is involved here is (1) systematic attention to the full gamut of media resources, not just to the glamorous few, (2) assessment of each for its special (but not necessarily unique) contribution to the achievement of intended goals, and (3) determination of the suitability

and effectiveness of the resource in the particular situation in which it is proposed to be used. Thus, an "appropriate instructional technology" would:

* Start where learners are---with respect to what they know about the subject and where they wish to go with it; with respect to their ability to use (and to profit from) various types of media, including "folk media" (discussed later).

* Use simple, readily available (i.e., in the immediate environment, where possible) materials and devices.

* Actively involve learners in the teaching/learning process. Stress participation in planning; invite reactions to media products and utilization procedures; emphasize product-oriented learning that is based on real-life problems and circumstances.

* Stress creation or invention of appropriate learning materials by learners themselves---enabling themselves and others to learn. Involved here might be such products as flipcharts, simple graphs or drawings, a single copy of a cooperatively written and illustrated scrapbook, an original puppet presentation, and others.

* Move toward uses of more expensive or more complicated resources only if such extension does not compromise applications of simpler technologies known to "work" in the particular situation.

* Recognize that if proper media and techniques are used ". . . universal literacy /reading, writing/ is not an absolute essential in conducting nonformal education programs . . ." and that "through appropriate nonformal education methods, illiterate persons can be (1) taught to adopt new practices or acquire new skills. . ., (2) trained to serve as paraprofessionals or other development agents, and (3) otherwise trained to participate in, or to foster changes among, their groups. . ." (In "Nonformal Education and the Rural Poor," The NFE Exchange, Michigan State University, No. 5, January 1977, p. 4.)

Folk Media

Another especially significant aspect of "appropriate instructional technology" seems to relate to appropriate and frequent use of folk media in developing country non-formal education---which, of course, well suits the LRCBCES approach. Casey comments on this:

> There is an emerging realization that traditional elements of today's society possess communication channels that can serve as means to stimulate rural development, and which are compatible with mass media and extension workers. These channels are folk media which use the local idioms and are people-based. . . . The overriding conclusion (is) that folk media have the potential to involve large numbers of people who have not previously participated in development efforts. (Randall Casey, in "Folk Media in Development", Instructional Technology Report, No. 12, September 1975, p. 1.)

But what is really meant by the term, "folk media"? Although the term is seldom specifically defined, it seems clear, in the literature, that those discussing it usually imply reference to such media and techniques as: village theater, puppet shows, storytelling---illustrated (as with large drawings or projected slides) or nonillustrated and strictly "verbal", perhaps with traditional folktales, folk festivals, balladeering, and the like. To these could be added indigenous games and simulations, as well as the "object lesson" (i.e., instruction through use of some real object, or of an abstraction or model of it, as the major focus for an explanation or story).

But perhaps the term might also be extended in some

localities to include what Illich refers to, in his Deschooling Society as the setting up of "learning networks" of things and people within some local or regional area in which education is expected to occur. These networks would constitute various resources to which learners might have access, on their own, to use when needed. Networks of things might be comprised of such items as books, films, audio tapes, computer banks, tools, devices and machines, toys, games, art and music works, and things-in-nature, such as rocks, plants, planted fields, and more. Networks of people, under Illich's plan, might consist of "skill model" individuals (those possessing some superior degree of skill which they are willing to model for others), peers (people with whom learners could practice and pursue some skill or interest), and "educators" (individuals fully capable of guiding others toward defined goals).

Barbara Yount, in drawing upon the findings of an international conference on folk media in development education, developed ten guiding principles of the potentiality of folk forms and the techniques of producing and using them to motivate people, as follows:

* The folk media should be an integral part of any communication program for rural development. Wherever possible these should be integrated with mass media; but, in all cases, integration with the ongoing extension work is vital.

* The prerequisites to the use of the folk media are: (a) an understanding of the rural audiences, and (b) the use of these media to provide the rural people with recreation, to attract their attention, and to ensure their participation in developmental activities.

* The utilization of folk media in communication programs should be viewed not only from the perspective of socio-economic development but also of cultural development.

* Folklore reflects the changes that society undergoes; it should thus retain social authenticity. The folk forms have evolved gradually, and wherever they are flexible they retain their appeal to the rural people.

* Not all folk forms can be used for developmental or population communication purposes; thus they should be carefully studied from the points of view of content and characterization for their possible adaptation in order to carry developmental or population messages.

* Folk media productions should be consistent with the needs of the social environment and related to the customs and beliefs of the local communities.

* Since folk media have socio-cultural roots, their utilization should be related to local events, and their function in the local communication strategy should be properly assigned.

* Efforts should be made to preserve the originality of each folk form; adaptation need not alter nor destroy the form.

* For effective community-level communication strategies, an integrated and planned use of both folk and mass media is necessary for achieving optimum impact and for desired feedback.

* Collaboration between the folk artists and the media producers is absolutely essential for the successful integration of folk media and mass media communication strategies for developmental purposes. (Instructional Technology Report, No. 12, September 1975, p. 8.)

Programmed and Modularized Learning

Today's definition of programmed learning is considerably broader than that first employed in the days of Skinnerian teaching machines. As it is now used, the term may refer

to formats of single instructional media items (as, for example, a programmed textbook or an interactive computer program); or it may also refer to a planned sequence of studies involving a variety of activities, media resources, and procedures. The essentials of both such forms are included in this definition:

> Programmed instruction is a learner-paced instructional activity which includes instruction in small steps, responses by the learner, and immediate knowledge of the accuracy of his responses. (Educational Technology: A Handbook of Standard Terminology . . ., p. 102.)

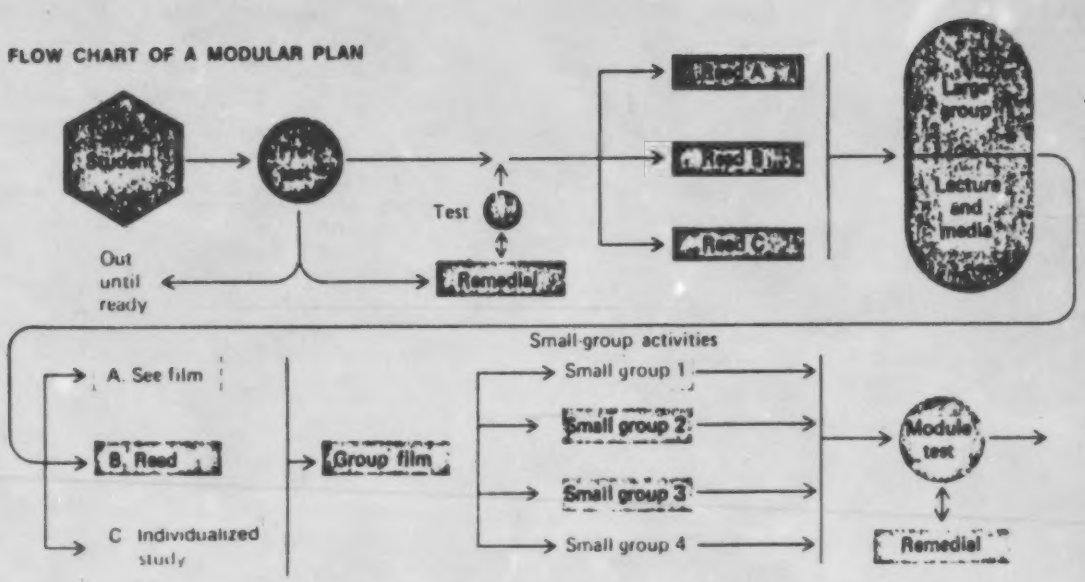
Programmed instructional materials are generally fall in one or another of two types: linear or adaptive. Linear programs usually require learners to recall by "constructing" an answer to or recognize (by multiple choice test items). With both, students complete the entire assignment, skipping nothing en route.

With adaptive programming, on the other hand, students have a little more leeway. If at test points they do not choose correct answers, they are "programmed" to review or to repeat certain study content and to try again---sometimes from the very first of the program. However, if they are able to demonstrate knowledge of the information or possession of the skill being taught in this way, they may skip portions and proceed to some point where new learning will occur.

Modularized learning, as it is currently practiced, has many of the characteristics of second type of programmed

learning just mentioned. The accompanying chart, "Flow Chart of a Modular Plan", provides an example of this process in action. Brown, Lewis, and Harcleroad explain the procedure:

> Note particularly that, at the start, cumulative records are consulted and a pretest is given to determine a student's readiness for the module. Those ready to proceed with the assignment then receive a syllabus outlining procedures, standards (criteria by which the student's efforts and products will be assessed), activity details and directions, and other information describing how instruction will be managed.
>
> The first module assignment requires students to carry out one of three different reading assignments, each designed to accommodate to needs of students with particular backgrounds, reading skills, and interests. Some choices may be made by the teacher; others by students. A large-group lecture-demonstration, backed with suitable media resources, is then attended by all. The syllabus indicates the varying assignments and expectations for students in separate tracks. Following the syllabus, students in one track proceed with independent reading; those in other tracks see a film. Further on, all students, as a group, see and discuss a film. Depending on track assignments, syllabus directions then call for students to engage in one or more small-group activities. Finally, at the end of the module, a test is administered--either taken as a self-test or administered by the teacher. Those who perform at criterion level are judged to have passed; those who did not are required to review and complete additional learning exercises before retaking the entire test or taking subtests which cover only objectives and content in which they performed below standard. (Brown, Lewis, and Harcleroad, AV Instruction: Technology, Media, and Methods, p. 21.)



---From Brown, Lewis, and Harcleroad, AV Instruction: Technology, Media, and Methods (5th Ed.), p. 21.

Multimediated Learning Through Learning Modules

The emphasis upon multimediated learning, provided throughout this report, often culminates (especially in nonformal education) in the production and use of learning modules which combine through preselection, testing, and validation the best elements of programmed and modularized learning just discussed. The "multimedia kit," usually used in such cases, often combines an optimal choice of media that is geared to achievement by students of predetermined objectives, with each item being expected to contribute something essential to the process.

Commonly, such kits are to include: (a) a learner syllabus---a guide and assignment supplement for study of the entire module, (b) materials on audio cassettes--sometimes for the purpose of guiding the learner in his or her use of other materials, and sometimes as the presenter of specialized "audio" materials---documentary sounds, a speech, a dramatization, a discussion, for example, (c) still photo materials---such as filmstrips, study picture sets, or highly illustrated booklets or guidesheets, again sometimes accompanied by audio tape materials, and (d) participation materials---worksheets, pre-tests and post-tests, fill-ins, puzzles or games, and the like.

Modules are often planned and developed locally by drawing upon and suitably combining materials that have been produced commercially with those that are produced on

the spot by teachers and learners. More is said about the value of this activity in a later section of this chapter.

Media Selection

Selection of educational media was discussed in general terms, within the context of the Systematic Approach of Instructional Technology, in Chapter II. Here the discussion aims more specifically at details of these processes as they will be expected to apply to the LRCBCEC program. Considerable empirical, and somewhat less research, evidence appears to support the following generalizations with respect to media utilization in developing country education.

* No one medium is "best" for all purposes. Schramm stresses this point, saying:

> Perhaps the central conclusion about media effectiveness . . . is the extremely broad band relation of media to learning tasks. Students learn from any medium, in school or out, whether it is intended or not. . .providing the content of the medium leads them to pay attention to it. . . . Furthermore, we find the media able to carry out a wide variety of instructional tasks. . . (Therefore) choosing media usually means choosing a combination of media...(M)ost teaching is multimedia, and has been so since the stoneage man used bow and axe as media of demonstration and practice. . . (Wilbur Schramm, Big Media, Little Media, pp. 267-268.)

* Media selected should provide appropriate subject content---is a point which was discussed earlier, in Chapter II.

* Both the selection and use of media should be consistent with objectives they are expected to serve. If it is expected that, through the process, students will learn to solve problems and to think for themselves, for example, the media used should not "give all the answers" and leave no room for probing, testing, or experimenting.

* Media users should expect to make appropriate trade-offs to achieve the ends they seek with the means at their disposal. Media desired, or especially appropriate for a particular stated purpose, are often unavailable. What remains to be done in such cases is to choose from among those that are available the one(s) most nearly purpose-suited and to creatively adapt the use made of it (them) to the situation at hand.

* Media selected should match with learner capabilities and learning styles. They should be capable of being "experiended" by learners, a point that was developed earlier in Chapter II.

* Media selected should fit the sociological milieu of the situation in which they will be used. Learners must be expected to relate to (perhaps empathize with) individuals and situations portrayed in filmstrips, films, or video programs, for example. Therefore, their content and treatment should not run counter to established folkways and mores, nor should they emphasize "foreign" customs and content, unless this is specifically called for.

* Media selected should be appropriate "performers" in the physical environments and in the instructional/ learning modes in which they are used. Projected materials should be large enough and bright enough to be seen by all in the audience; audio recordings played to a group should be clearly audible to all listeners; lettering on charts used with groups should be large enough to be seen clearly even in back rows; exhibits should be placed where viewers may pause, at least monentarily, without obstructing the flow of traffic.

* Media selected should be within the literacy range of individuals with whom they are to be used. Types of literacy with which one should be concerned, in such cases, include: verbal, audio, and visual, discussed in the following section.

Media Literacy: A Consideration of Selection

Although instructors in rural areas would never dream of expecting illiterate audiences to read printed materials, they may fail to consider how difficult it is for these same people to "read" visual materials and even audio materials. A person who has never seen a stick figure drawing for example, may have trouble comprehending what it represents. Full literacy involves the ability to profit to the greatest extent from an information channel. To be regarded as literate, learners must be able to identify the subject, to recognize details, to interpret clues as to the meaning

implied in it, and draw conclusions about the context of the material presented, in whatever medium.

Materials that are designed for use with rural audiences in developing countries must be tested in the field before they can be considered suitable, or valid, to the purposes they are intended to fulfill. LRC personnel are advised to check to see how materials are being interpreted by asking people to describe what they think is going on in them. Materials can be judged ineffective because they do not communicate the intended message, or they actually communicate a message that is opposite to the intention, or they are so "muddy" that it is unclear what, if anything, they do communicate.

The following are aspects of various media that may cause problems in comprehension and interpretation. Working with such materials requires that learners be taught several things before they can be judged to be capable of understanding the materials:

* Use of symbols. Most graphs depend on symbols (bars, lines, circles) to communicate their meanings. These symbols must be explained to their users. Other symbols are so commonly used that their presence in graphic materials is often unnoticed. For example, charts showing the transmission of disease often use a dotted line. The significance of this is often (if not always) unclear to a truly illiterate audience. Stick figures which are

intended to resemble people may also be confusing or unclear.

* Artistic conventions. The treatment in drawings of such issues as perspective and shadowing is a matter of convention and does not necessarily make them more comprehensible to rural, illiterate audiences. With perspective drawings, lines converge in the distance and distant figures are shown in smaller proportions. Often, in such cases, viewers wonder why the people are different sizes, or recognize them as something they are not intended to be. Details of drawings or pictures are sometimes obscured, such as when cows are shown with only three legs (the fourth being on the other side). Thus, to the unsophisticated, the animal does not look like a cow "because cows have four legs." When several figures overlap, the part that is behind is not shown. The audience may wonder why the figure has something cut off. Shadowing is suggested by darkening an area or shading it with lines. This makes the figures appear to some people as if there is something wrong with them.

* Grammar of film. Motion pictures are based on conventions unique to the medium. Techniques of switching scenes (fades, dissolves, cuts), for example, can cause confusion and difficulty in determining relationships of juxtaposed scenes. The special effects possible on film (such as speeded up, slowed down, or stopped action) also contribute to the problem of inferring reality from them.

The quality of motion, while adding to the "real" appearance of film, may thus make it more difficult to understand why these figures are not bound by the same limitations as the audience.

* Limitations of audiotaped materials. Material recorded and played on tapes is usually audibly distorted. People's voices sound different on tape from the way they do in real life. The first exposure to a disembodied voice coming from a machine may be truly frightening. Sounds that are normally heard as coming from all directions are, artificially compressed, in audio recordings, into a single source. Under some circumstances, stereo speakers may provide a more "realistic" impression by enabling a different voice or sound to come from a different speaker, but this, too, requires experience to interpret. Additional sources of confusion arise with the separation of sound and image. With motion pictures, the sound may come from a different direction than the picture. And the sound does not always represent what the pictured people are saying, as in the case of narration.

* Body language. The way people hold their bodies and their facial expressions may often communicate as loudly and as surely as if they were speaking. The behavior of actors in motion pictures, the attitude of figures in drawings and photographs, and the way the instructor behaves all affect how their messages are received.

LRCBCES personnel should therefore keep in mind that materials for use in nonformal education should be selected with the preceding factors in mind. Created materials can be improved through careful designing. A photograph of a single subject with background detail eliminated stands out clearly and reduces the possibility of distracting or confusing information. Simple line drawings of people or objects are easier to identify than those with complicating detail. Visuals using familiar scenes are generally believed to be the most effective. All figures or objects used should be realistic and locally oriented because the learners are sensitive to details that are not indigenous. It is easier to use ideas and scenes that people are familiar with (the known) to teach them about the unknown. Therefore, perhaps the slimplest way to avoid all of these problems of literacy--comprehension and interpretation of materials--is to involve local people themselves in the design and production of materials that are to be used.

Media Utilization

Two matters pertaining to the utilization of media deserve consideration here: (1) the purposes for media utilization, and (2) a basic approach to media utilization, for group study and for independent study. With respect to the first, there are four generally recognized purposes for utilizing media in developing country, nonformal

nonformal education activities:

* To introduce a subject that is to be studied, providing in effect an overview of the subject or, sometimes, a set of "jarring facts" with which to stimulate learner interest in or anticipation of studying it further.

* To present information, to establish or affect a particular attitude or value, or to develop or improve some skill.

* To aid in organizing, presenting, and summarizing (for instructors, for other learners, for "outsiders") what has been learned, as, for example, developing a visualized exhibit which summarizes what was learned during a period of study.

* To aid in evaluating what has been learned and how well one is able to use it in real life situations, as for example, showing a film or sociodrama which a group had never seen and asking students to critique processes demonstrated in terms of what they had just learned.

A basic utilization plan, commonly recommended for most media presentations to groups of learners, involve steps and procedures which call for the presenter (instructor or selected student or group) to:

* Prepare in advance, by actually previewing a film or auditing a recording, for example, and by taking notes, inferring key points and conclusions contained in it, and considering ways to make most effective programmatic use of it.

*Arrange the environment in which the item will be used, setting up chairs or benches, for example so that all can see the screen, providing suitable ventilation, having blackboard and chalk handy, if needed, and the like.

* Prepare the group with whom the item will be used, offering an introduction prior to use of the item which explains in general its purpose(s), type of treatment, content, and reasons why it is being used. Explain, too, what it is intended the group will learn from the experience. Call attention, prior to use, of the presence and meanings of new or especially difficult words, unusual photographic techniques, or other characteristics, as warranted.

* Use the item, as appropriate. If a film, for example, consider whether it will be most appropriate to show it all the way through, or whether to interrupt the continuity at various appropriate points to elaborate upon or to explain what has just been seen.

* Follow up on the experience, by returning to any "points to look for" or questions raised during the introduction of the item; discuss; consider the appropriateness of reshowing parts of films, of relistening to parts or audio cassettes, or of other repetitions.

Uses of media in independent study and with individualized study options involve a somewhat different set of considerations and procedures. Here, the teacher/monitor/animateur will be expected to:

* Locate and make available materials suited to the ability levels, study purposes, and learning styles of particular learners.

* Arrange interesting and functionally organized displays of such materials from which learners are encouraged to make their own selections, as appropriate.

* Develop a plan for circulating materials, along with appropriate directions for use (and assignments for study), and for maintaining necessary inventory controls for them.

* Develop (or use already-prepared) independent study assignments that call for the completion of well-explained tasks and the preparation of specific products (reports, an exhibit, an experimental land plot, or other) related to the study effort.

* Develop evaluation procedures and instruments through which individual students may, to the extent possible, assess results of their own independent studies and obtain guidance for needed repeats or corrections in the study plan.

Media Production

The significance of the processes of creating instructional materials (as opposed, simply, to using those produced by others---largely commercial suppliers) is stressed by Brown and Lewis:

> Creating instructional materials is a complex process with high learning potential, for both teachers and students. The first step is to isolate facts, procedures, or concepts that (learners) find it difficult to master; then

> either the teacher or students, together or alone, create communication resources to solve these problems. The very process of devising solutions to learning problems helps to clarify and implement communication. (Brown-Lewis, Eds., AV Instructional Technology Manual for Independent Study, 5th Ed., p. 7.)

Need for in-country production of instructional materials, in the LRCBCES program envisioned in this report, extends from the local community to regional and national levels. LaBelle comments on this:

> From the standpoint of education, one of the weakest parts of most nonformal programs I visited rests with the instructional products used in terms of information delivery. . . . Currently the way in which new information is communicated through all types of media, but especially through print, lacks a conceptual basis in learning theory, is drab in its presentation, confusing in its message, and inappropriate to the interests, needs, and skills of the participant. The professional educator trained in instructional product development is the natural specialist on whom numerous promotion agencies should depend in rectifying these deficiencies. Unfortunately, this kind of specialist does not generally exist in sufficient numbers and when he is present he almost always works with formal rather than nonformal education curricula.
>
> I believe that educational establishments, especially ministries of education, can provide their greatest service to micro social change by servicing and responding to the instructional product needs of promotion agencies. Thus, rather than designing and implementing their own adult basic education programs isolated from other social promotion efforts, educators should train representatives from private agencies and other ministries to design and prepare their own educational materials. This is probably the most appropriate and natural way that educational ministries can strengthen relations with social change programs while at the same time building on what should be an appropriate specialization for at least some educational technicians. I believe that international agencies, as appropriate, could provide the initial support

> required to develop a cadre of such specialists in many Latin American countries. (Thomas LaBelle, Nonformal Education and Social Change in Latin America, p. 194.)

The LRCBCES program, following the precepts of the Systematic Approach to Instructional Technology, would concern itself with such problems and seek suitable solutions to them through local, regional, and national activities. In doing this, production activities likely to be engaged in by both learners and LRCBCES personnel could occur at three levels:

* Mechanical preparation level---doing production jobs as requested (mounting pictures, copying slides, reproducing copy as transparencies, duplicating paper items, and the like).

* Creative level---involving more judgments regarding the selection and presentation of materials to achieve specific learning goals. Examples: selecting and arranging pictures, captions, and hand-lettered titles in producing teaching displays; writing script, arranging slides, and recording narration and sound effects for sound filmstrips; planning, photographing, and editing 8mm sound films. At this level students, in particular, may thus learn to "talk with pictures" and to "show what they mean", as innovative demonstrations of the skills of visual literacy.

* Design level---usually involving the integrated planning and production of a number of interrelated media items designed to fit effectively into predetermined teaching-

learning processes, often as modularized self-study units. (Adapted from Kemp's ideas appearing in Brown-Norberg-Srygley, Administering Educational Media, pp. 251-252.)

Media Product Procedures

Media product development of a "national" or "regional" character, particularly (and sometimes of a local nature, as well) will require systematic adherence to a number of procedural steps. The media product developer will be expected to:

* Set goals and determine the roles of the communication product in achieving them. Answers to a number of questions must be sought. . . those to whom the product will be specifically directed: Is there an important need for the communication product? What behavioral changes are to be sought through using it? With what target audiences, having what characteristics, and under what circumstances and conditions will the product be used? What message content will be essential? May the demand for the product be satisfied only through appropriate local production activity? Or is it likely that some already available commercially produced items would serve equally well?

* Choose appropriate channels (media) for the messages and circumstances of use of the product. What should be the special characteristics of the message (to inform, to motivate, to develop some skill, other)? Will the message be primarily "educational"? Will it seek primarily to produce affective results? Will it be necessary to refer back, to review, to study the message while actually performing some task? Will communication of the message require its presentation in motion? With dialogue? Natural sounds? Narration? Sound effects? What are to be the circumstances of use of the product (the physical environment, the audience size, its level of sophistication and previous acquaintance with the content of the message)? What production costs will be involved? Will the costs, in the medium and with the treatment proposed, be justified by the educational benefits expected to be derived? Are sufficient funds available? Is the project feasible for completion by the staff available?

* Develop the communication product. What should be the product's message? How should it be designed (what order, what redundancy, what timing)? What pretesting (dry runs, market analysis) should be done prior to actual commitment to film, tape, print, or other medium? When? What changes will be required as a result? Data with which to answer such questions might be required at any one of several production stages: original prospectus (rough plan), treatment outline, storyboard, simulation (a sound-slide still presentation of a motion picture, for example), or later, near-the-end versions prior to final commitment.

* Pretest, use, and evaluate the product. Does the product actually communicate as intended? Is it useful with the audiences, for the objectives, and under the circumstances originally envisioned? What corrective cues are discerned? How valid are the procedures and instruments used to obtain and interpret data from which such conclusions are drawn? Are product improvements required before its full-scale dissemination begins? What built-in or supplementary user controls or aids (introductory sound track comments or focusing questions, utilization guides or pamphlets, teacher- or student-response materials, in-service instruction) are necessary to ensure optimum product utilization?

* Disseminate the product. How shall the target audiences (or personnel through whom they are to be reached) be informed of the product's availability? Will preview or tryout services be required? How many copies (prints, sets) will be required? How and under what policies and procedures shall actual product distribution be managed?

* Monitor and maintain the product. How shall loan products be maintained in good physical condition? What procedures should be instituted to monitor up-to-dateness and to recommend withdrawal or revision as necessary? What provisions should be made to ensure availability of necessary replacement parts (parts of kits, individual slides, damaged film portions, and the like)? (From Brown, Norberg, and Srygley, Administering Educational Media, pp. 253-254.)

A Media Taxonomy: Introduction

It was mentioned earlier in this chapter that Schramm's conclusion with respect to media is that students learn from any medium and that media are usually able to carry out a wide variety of learning tasks---depending, to a considerable extent, upon how they are used. He stressed, also, that choosing media usually means choosing a combination of media and that most teaching is multimedia in nature.

It was with these thoughts in mind that the decision was made to employ a simple logical grouping of media resources to facilitate their examination of their characteristics, the special contributions to learning each appears to be capable of making, limitations upon their use in developing country education, and ways in which they have been used successfully for this purpose. Thus, the presentations of Part Two following adopt no between-group classification scheme such as the familiar "concrete to abstract" continuum of Dale or others. It seeks simply to identify, by logical groupings, the media that might possibly be used in developing country education and specifically in an LRCBCES program.

Under this system, the following media groupings occur:

Chapter V. Print
Chapter VI. Motion Pictures/Video
Chapter VII. Audio
Chapter VIII. Pictorial (Still)
Chapter IX. Symbolic, graphic
Chapter X. Dramatic, Interpersonal
Chapter XI. Three-Dimensional, Real

Discussions in connection with each will center of (1) the ranking of media within the grouping, (2) descriptions, (3) advantages, (4) limitations, and (5) examples of use in developing country nonformal education.

V. MEDIA UTILIZATION: PRINT

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Technologia, Medios, y Metodos, Ch. 15, "Materiales Impresos de Texto y Consulto"; Ch. 14, "Materiales Complementarios, Gratuitos, y Baratos."

Brown-Lewis, Eds., Instruccion Audiovisual: Manual de Ejercicios. 31. "Libros de Texto"; 31. "Materiales de Consulta"; 14. "Reproduccion con Alcohol"; 28. "Materiales Gratuitos y Poco Costosos".

Print Types

The following types of print media considered here for possible use in nonformal developing country education are categorized on a scale proceeding from those that require considerable supporting technology for their production and/or use to those that can be easily produced on location:

Microfilms, microcards, microfiche
Textbooks
Programmed materials, self-guided instruction
Supplementary books
Booklets, pamphlets
Magazines
Newspapers
Duplicated materials, handouts, leaflets
Newsletters
Documents, clippings
Flash cards

Description

Print media are generally linear, meant to be read one unit at a time, and at least in a somewhat prescribed order. They are highly organized and meant to be coherent, composed of a series of discrete pieces each with clear relations

to the others. Concepts presented in print are quite abstract. Most print media are paper-based.

Advantages

Textbooks are designed to allow random but organized access to the information they contain. Except for the mass print media (newspapers and magazines), most print types are used to present information and to teach it. Their effectiveness is relatively independent of the presence of a trained instructor. In addition, print types promote individualization of instruction by presenting options, particularly in programmed or self-guided instruction.

Print materials are probably the cheapest and most easily mass-produced media of those treated in this report. Textbooks can be used year after year, making them cheaper than the equivalent in visual media. In general, print media (including micromedia) are small and lightweight. They are easily transported to schools and to people's homes. Print materials are useful both as primary and as supplementary teaching aids. In fact, print is often regarded as an essential supplement to audiovisual teaching materials.

Limitations

One of the limitations of print media is that, by their nature, they are dependent on rather advanced learner literacy skills. Learners must know how to read before they can study printed materials. Print media are also limited to a particular language and a particular dialect

of that language. The barriers to literacy are even greater when the written language is itself foreign to the learner.

Perhaps the most serious criticism of print media is that they do not necessarily encourage thinking. Often the learner does not actively participate in the learning process; he or she may absorb information without necessarily responding and encompassing it. However, most print media, including newspapers, can be used as a focus for group discussions.

Print media are difficult to produce locally without the necessary equipment. But flash cards are an example of materials that do not even require a duplicating machine. Use of print materials alone is usually limiting; other types of media must be used with them to provide variety and to build learner interest.

Examples of Use

In geographic areas where textbooks are inappropriate in content, or even unavailable, learners can sometimes produce their own. A simple spiral or three-ring notebook can be made into a kind of textbook by inserting pictures and adding print, clipped or duplicated from newspapers, magazines, or old texts, supplemental by handwriting or typing. Each section can be designed to suit the subject matter covered by collecting material from a variety of sources.

For literacy programs where printed materials are not

available in the local language or dialect, learners can also develop their own materials. Each person tells a story--a folktale, a ghost story, or a real event--and another person writes it down. These products are then collected and used as a class book. In that case, learning to read begins with the study of familiar and personalized words and themes.

"Plan Puebla", a nonformal education project carried on in Mexico, used print media in several successful ways:

> The technical assistance agents /there/ have produced specific written material which is used to facilitate the process of technical assistance. These materials are simple pamphlets, written in a language familiar to the campesinos. The booklets show step-by-step technical recommendations for each specific production system. (Cisneros, Plan Puebla, p. 19.)

"Plan Puebla" also found print media to be effective for extending the usefulness of a program once the original change agents had left:

> The technical personnel of the evaluation program also have produced a field manual that has been used as guideline in the objective estimations of yields in every agricultural cycle. (Cisneros, p. 19.)

Colombia's Accion Cultural Popular (ACPO) with its Radio Sutatenza programs, employs print media, along with radio, tape recordings, and various types of group sessions to achieve its goals. El Campesino, its program newspaper, has a circulation of 70,000, which is greater than that of any other paper in Colombia. The paper features special pull-out supplements on family planning and education which can also be used as posters or folded booklets. ACPO also

publishes simple books for newley literate farmers at a cost of about 13 cents U.S. each. (Adapted from Project Profiles, "Accion Cultural Popular (ACPO)", Clearinghouse on Development Communication).

The recent Densu Times research project involved publication and distribution of a school and community newspaper to 2,500 middle school students in rural Ghana. Smart comments on the study:

> The research proposal for the Densu Times project reflected the assumption that the instruction of a school/community newspaper that carries local and personal news and that is written simply and illustrated with local pictures will motivate illiterates to read and semi-literate to improve their reading skills.
>
> It was further anticipated that improvement in literacy levels could be measured qualitatively by comparing 'before' and 'after' scores on reading-comprehension tests of persons in experimental and control groups. The experimental-group would receive the newspaper weekly; those in control groups and in a similar school environment would not...
>
> Over the two years of the study, the experimental students showed a mean test-scores gain of 17.21 per cent; the control-group students had a mean gain of 11.77 per cent....
>
> The data, the responses of school and government administrators, and the enthusiasm of the Densu Times all serve the indicate that the school/community newspaper is an effective teaching aid and a suitable device for dealing with illiteracy. (M.Neff Smart, in "The Densu Times--Self-Made Literacy", Development Communication Report, January 1978, pp. 1-4.)

Newspapers available in many areas can be a powerful incentive causing persons to want to learn to read. Posting a copy of the newspaper in some central place, for example,

encourages people to ask others to read it to them and demonstrates the potential value of the skill itself. The newspaper itself shows that reading gives one access to knowledge that is important even to poor people who live in rural areas. In addition, promotion in this way of a place where people gather makes it easier to approach other groups of people and to organize other nonformal education programs for them in that location.

Print media can also be used in creative ways to motivate attendance at particular programs. For example, "Plan Puebla" sent personal letters to campesinos who had been contacted earlier and who had participated in other programs in order to interst them in attending a forthcoming demonstration. (Cisneros, Plan Puebla, p.24.)

VI. MEDIA UTILIZATION: MOTION PICTURES/VIDEO

Readings: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. Ch. 7, "Cine"; Ch. 9, "Television".

Brown-Lewis, Eds., Instruccion Audiovisual: Manual de Ejercicios Intensivos. 20. "Como Hacer Peliculas de Cine"; 21. "Produccion de Television con Una Sola Camera"; 36. "Peliculas y Videotapes Pregrabados"; 41. "Difusion de Television"; 51. "Principios de Los Proyectores fe 16mm"; 52. "Proyectores de Peliculos de 16mm"; 53. "Proyectores de Peliculas de 8mm"; 54. "Receptores de Television," 55. "Sistemas Portatiles de Video."

* * *

Motion Pictures/Video Materials

Motion pictures and video materials may be ranked on the basis of those requiring the most costly or complex equipment to produce to those requiring least:

16mm films---sound and silent; color, black-and-white; optical, magnetic tracks
8mm films---sound and silent; color, black-and-white; optical, magnetic tracks
Video (assuming portable equipment)---2-inch, 1-inch, 3/4-inch, ½-inch, ¼-inch; color black-and-white

Description

Motion picture/video media all involve visual images in motion. Motion pictures are on film; they are composed of a series of essentially "still" photographic images which, when projected, create an illusion of motion. Films come with or without sound tracks, in color or black-and-white. Motion pictures can be 70mm, 35mm, 16mm, or 8mm, although

the first two mentioned are seldom used for educational purposes. The film itself comes in reels, cartiridges, and/or cassettes. Videotape comes in open reels or in cartridges or cassettes. Film and video producers and distributors will often supply the same title in any or all of the several laternative formats and widths requested.

Advantages

Films are a rich resource. Many are available on many different topics. Although films are realistic, they often heighten experience even beyond real life. They can also overcome physical limitations by the use of special features: time lapse, slow motion, and stop action, for example. They can use microphotography for small objects, x-ray photography to reveal the insides of objects, and tele-photography to bring distant objects close to view. And they can be made with animation---the drawing of a series of single still pictures in each of which the motion changes slightly to produce an illusion of motion when projected. Some films have built-in viewer participation activities and a redundancy that makes them especially effective as teaching devices. With films or video, one can turn off the narration and supply his own, or record a separate sound track for special local use. Motion picture projectors are now available that are battery-powered and even sun-powered.

Of the two types--16mm and 8mm--often used in education,

the 16mm size offers the better image. Because of the prior existence of so many 16mm networks in developed parts of the world, the 16mm size continues to be easier to distribute. The 16mm size is also best for projecting for large groups. On the other hand, the 8mm equipment is not as imposing or intimidating as the 16mm size. Subjects filmed in 8mm may thus be more natural and perform well although they may not be professional actors. It is also easier for the untrained person to operate 8mm than 16mm equipment.

Videotape is usually a cheaper medium than either 16mm or 8mm film, especially when locally produced. Costs of duplicated video tape are also coming down. Because of its economy as a local production medium, video tape is a favorite for beginners---who quickly learn to operate the necessary equipment, shoot a lot of footage, then edit it down for use. The result is often a rougher looking product than film; it looks more home-made." But it is (or can be) quite participatory because so many people may take part in productions. Even illiterate persons can express themselves well on video. Tapes can be erased and re-used; no processing (chemical) is required to go from scenes photographed via the camera to scenes replayed on the video monitor. Videotapes made locally can be broadcast over many television stations, and programs can be recorded directly from television sets. In fact, television

programs can be distributed as videocassettes and as many copies as necessary can be duplicated for this purpose.

Both film and video communicate easily to people without basic reading and writing skills. They may be repeated as often as desired, which is a distinct advantage when presenting elements of involved skills. In such cases, the instructor may stop the film to ask the group to discuss, to clarify, or to ask questions about what has just been viewed. Motion found in films and video aid greatly in the learning of skills or ideas that are themselves "in motion". Understanding how to learn from films and videotapes can be improved with practice and attention to details of visual communication (discussed earlier in Chapter IV).

Disadvantages

One potential disadvantage of films and preprogrammed video cassettes and reels, is that when they are brought to a local region "from the outside", they may present assumptions that are not understood or, worse yet, that may be misunderstood. It is sometimes difficult to use films produced in the idiom of other areas and cultures because it is hard to identify in advance of showing all the points that might lead to confusion. Programmers once thought that films alone might stimulate people's interest in change and development. They thought films were culture-free and that they represented a universal language. But all too often the viewers were unable to identify with the

films, especially with those portraying unfamiliar and different ways of life. To obtain the degree of understanding wanted, then, it was necessary to help rural audiences gain experience with the film medium and to develop a suitable level of "visual literacy." (This point was discussed earlier, in Chapter IV.)

The disadvantages of using locally produced video lie chiefly in the high initial cost of buying the equipment and, later, of maintaining it in operating condition.

Examples of Use

Points mentioned in Chapter IV with respect to recommended patterns of use for media generally apply also to films and programmed video materials. Learners should be told what they are going to see, what they should look for in the viewing, and what new or unfamiliar terms or concepts they will encounter. Follow-up activities of various kinds (discussions, tests, actual applications of principles or techniques shown) often increase comprehension. When showing films or video programs that present problems, it is sometimes advisable to stop the showing before a particular problem is actually resolved and have the group discuss possible solutions before continuing. Other utilization practices somewhat unique to motion pictures/ preprogrammed video are numerous.

Higgins discusses the use of films in India:

> An attempt was made to schedule film showings in all project villages, as films are a rare event in rural India and attract enthusiastic audiences. From the list of available films produced in India, thirteen relevant shorts were selected and purchased for the program, and a schedule was carefully drawn up. It proved impossible to adhere to the schedule, because something always went wrong: there would be no audiovisual van in working condition, or no generator, or no driver. On the few occasions when a show could be given there was no doubt about the popularity of the affair--the whole village came to see it. However it is debatable how much impact these showings had; they provide a bit of social excitement in anotherwise uneventful existence, but not much more. . .
>
> In light of the unreliability of this medium of instruction, it seems pointless to invest large sums of money to make additional films, unless it is certain the available equipment is adequate to make full use of those already in existence. It is of course much more glamorous to make a movie than to repair a truck, but a movie that cannot be shown for lack of equipment is little more than an expensive ego trip. (Higgins, op. cit., pp. 19-20.)

Tisa agrees that past experience has shown that the effect of film on some inexperienced audiences is likely to be either negligible, or actually detrimental, to educative goals. To a large extent, he blames this on the fact that the full potential of the film and other related media is frequently never realized in developing country education. He gives several examples of how this could be done:

> * An instructional film is made showing how a bull is castrated. The operation is filmed in its continuity, from start to finish, for the purpose of familiarizing the trainees with the entire process before they must carry out their work in the field.

* A slide show is made on castration by copying individual frames of the film on 35mm slide film. The slide show may be used to reinforce the information provided by the film, by allotting the instructor to present each phase of the operation separately and to discuss it at length.

* Flip charts and photocards can also be made by copying and enlarging frames of the 16mm film. Those could be used by the trainees in their practice teaching, and taken by them into the field. By this time, the trainees will be completely familiar and at ease with the visuals, having learned from them themselves.

In reporting on "Plan Puebla" (Mexico), Cisneros offered a somewhat more positive perspective on films:

> One of the most important support media used in every agricultural cycle to promote the correct use of the recommendations of the program, was a movie made in 1968 under the title of Quiere Usted Aumentar su Cosecha de Maiz? (Do You Want to Increase your Corn Crop?). This movie illustrates step-by-step the correct use of the recommendations. The actors of the movie were the farmer "pioneers" of 1968. In the different actions that were filmed, they show how to mix the fertilizers and how to correctly apply them at the proper time to have the correct doses per hectare. The campesino actors--at harvest in the movie--ask all the campesinos of the region to participate in the program and to increase their yields, as they had done in that first year. Another movie entitled "Credito Agricola" (Agricultural Credit) was made to promote the correct use of credit and the need to organize themselves in credit groups or credit societies. The campesinos who were already in the credit program were again the main actors and explained to their colleagues, in their own words, the advantages they were obtaining by using the credit service. A third movie produced in Plan Puebla was titled "La Caje de Ahorros" (The Saving Account). This movie was a specific message to the campesinos who were already organized in a solidarity group or a credit society, to initiate a process of capitalization, using their own savings in each agricultural cycle. Thus the campesino-actors pointed out the potential for a given group to save enough capital to provide credit to its members, instead of depending on public or private banks.

Cinema vans---mobile units that present film showings in various localities have been proved effective under many circumstances and for various nonformal education purposes. However, Bowers views them with a somewhat jaundiced eye:

> I have had less positive, and in some cases very negative, experience of mobile cinema vans---vans arriving unannounced, or not arriving, breakdowns, power failures, badly spliced films, worn sound tracks, projector faults, faults in public address systems, bad commentators, language and dialect problems, but most commonly of all, a grave lack of appropriate films. Even if the film is appropriate, a largely illiterate rural audience has great difficulty in decoding its message and unravelling its conventional distortions of space and time. The film-show certainly brings a rural population together, and sometimes entertains them, but as an educational medium its effect may be less positive and very expensive. (Bowers, The Use and Production of Media in Nonformal Education, p. 23.)

Videotaping can be a valuable communication link between a training center for nonformal education workers and the workers in rural areas, and between central government agencies and people themselves in rural communities. The use of videotaping can create a feeling of solidarity among people in rural areas as they decide what they want to say and how they want to say it. The following is a description of a project in India that successfully used these techniques to communicate between villagers and policy and decision makers:

> In Rajasthan, a state in India, the United Nations funded a video tape project which began as a television program for villagers. In preparing for this project it was soon discovered that the program would have to focus on people and their problems because villages were highly fragmented

along social and cultural lines. Due to factors of caste, wealth and feelings of elitism some villagers had far greater access to the influences of change than others. These villagers exploited their access to change while the less fortunate infrequently gained access to instruments or ideas of change because they usually would be unaware of them.

Previously villagers had only been exposed to radio or film messages that were produced far from their village. By contrast, the operating credo for this project was that all people can contribute something to improve living and must be given the chance; people are a nation's richest treasure when they are involved in the development process.

The procedure of taping was open ended. For instance, a farmer was asked about the lack of wells for irrigation. The ensuing lively conversation was heard by a government change agent. After listening to the conversation, the change agent disputed the farmer's accusation of no loan money being available and wondered why farmers did not use all the government money available to them. All this was captured on tape.

Later, the change agent went to the local village council meeting. When the palaver got to the issue of government loans and programs, a storm of criticism arose from some farmers who complained about the lack of loans. The change agent again said that money was available. All these discussions were caught on the video tape.

Afterwards a filming about "local programs" was scheduled with the change agent, his superior and some villagers. The villagers raised straightforward questions and the government officials disputed them. Subsequently both groups viewed the video tape of the candid conversations and each began to sense the other's real and practical difficulties.

Video taping served here as the mechanism to integrate views of villagers who previously had been rarely in contact with the government change agent. The ideas and complaints of the villagers were heard directly, and their messages were not reinterpreted and passed through intermediate channels before being heard.

As the members of the video taping team saw it, the single most important and immediate contribution of the video process was in making the villagers and

> government officials aware of the important reasons of their "differences and lack of cooperation." (Instructional Technology Report. March 1974, pp. 1-2.)

Another experience with videotaping as an instrument of nonformal education with the rural poor comes from Tanzania:

> Believing that "the only way to reflect reality is to participate in it," an international video tape crew arranged with the Tanzanian government in 1971 to live in several villages in order to tape portions of rural life that would show historical and political themes, the dynamics of leadership, economic and social problems.
>
> The team developed a good rapport with the villagers and taped most aspects of village living, special events, meetings, discussions and arguments. All video tapes were screened twice a week. The screening generated more discussions which in turn were taped. Through the video taping process the villagers were getting a clear picture of their problems and thus were able to produce their own messages.
>
> The tapes were sent to the capital and viewed by the President himself, by government and party officials as well as by university faculty and students. Important government officials responded from the capital on video tape and sent them back to the villagers. In addition the tapes were shown in other villages. In almost every case villagers recognized common difficulties. They entered into debates and all began to learn of the mistakes and accomplishments of others. The video technology established direct links of communication between villages and helped to identify and resolve common problems.
>
> There were direct and prompt payoffs for the villagers from this taping experiment. An unpopular and troublesome agricultural change agent was removed; non-citizen villagers who had been promised citizenship three years previously were granted it; and a cowshed which was built without a water supply and against the villagers' advice was properly funded. (Instructional Technology Report, March 1974, p. 3.)

A final example of the value of local videotaping activities is provided by experiences with the Skyriver Project in Alaska:

> A major purpose of the Skyriver Project was to give Eskimos access to a communication medium which they could use to create a direct channel to the decision-makers in the state capital and Washington.
>
> Prior to introducing video taping into the villages, part of the taping crew lived among the villagers for two and a half years in order to get to know village life through their own experiences and to gain acceptance as friends by the Eskimos. Once the video taping process was utilized, it served as a powerful medium for Eskimos to pull together a consensus on the problems of the present educational system which were not adequately attended to by government officials. Once consensus was established, film was used as the medium of communication between village and the government.
>
> When the film was shown to the highest education officials in the state, its effect was electrifying. The educators had never heard a parent talking at a very practical "gut" level. . . and they had never really heard from a village person before.
>
> The Commissioner of Education replied to the film on video tape. As a result of the filming, education policy was eventually changed to meet the needs of the Eskimos.
>
> Another video tape/film was done on the issue of housing. The complaint was that the housing being constructed was not suited to local conditions. Structural defects of houses were illustrated on film: children ice skating in the kitchen and a room corner being used as a refrigerator to freeze meat. Use of the video medium brought change. The Eskimos' housing situation improved despite a lot of bureaucratic resistance. It was the video material that provided undeniable proof that the problem was real. (Instructional Technology Report, March 1974, p. 4.)

VII. MEDIA UTILIZATION: AUDIO

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. Ch. 11, "Cosas Reales, Modelos, y Demonstraciones"; Ch. 12, "Recursos de la Cominidad".

Brown-Lewis (Eds.), Instruccion Audiovisual: Manual de Ejercicios Intensivos. 34. "Excursiones".

* * *

Audio Materials

Materials in the audio category include the following, arranged here in order from those that are most commonly employed in instruction to those used least for that purpose:

Radio programs (including radiovision)
Audio cassettes
Reel-to-reel audio tapes
Disk recordings
Audio cards
Transcription belts
Telephonic instruction
Audio pages (talking books)

Description

Of all the media discussed in this report, audio materials are among the most versatile, the easiest to use, and the most effective in terms of results obtained with them. Radio (discussed earlier in Chapter III as one of the "mass media" resources) has certain other smaller group applications that deserve mention here, the most important of which is that of serving as the focus for dispersed

listening/discussion groups organized under the tutelage of monitors/animateurs. Radiovision, an adaptation of the "sound only" medium, provides listeners, in advance, with correlated in-hand printed or duplicated materials (often in newspaper or magazine form) to which continuous reference is made during broadcasts.

Audio cassettes, 1/4" reel-to-reel tapes, and 33 1/3 r.p.m. disk recordings may each contain identical audio materials; their differences lie largely in their formats. For developing country nonformal education purposes, the audio cassette is generally preferred. The audio cassette itself, and the simple-to-operate battery-powered playback/recorder with which it is used, have done much to revolutionize audio instruction throughout the world.

Audio cards, striped at their bottoms with a narrow strip of audiotape, were discussed earlier, in Chapter VIII, as accompanying drawings or pictures largely for drill purposes. But they may be used without such illustrations to present audio stimuli only (as in the case of foreign language pronunciation training).

Transcription belts (such as those accompanying Stenorette or IBM equipment) appear to have only minimal applications in developing country nonformal education. Telephonic instruction, highly developed in some parts of the United States (notably in Wisconsin and in Los Angeles), uses that instrument to provide effective two-way communication

(from instructor, back from students) in a number of study areas. Results appear to be improved through concomitant use of specially prepared syllabus materials related to courses presented.

The audio page, a relatively recent innovation, utilizes a miniature pick-up-amplifier-reproducer that is placed directly on a disk-like audio groove that is itself imprinted on book-like page. The user sees and hears words and pictures, and even sound effects, thus increasing the reality of the experience.

Gunter traces the recent expansion in the availability and uses of these various audio media and devices in education and communication, with special reference to their applications in developing country campaigns:

> When 'modest' hardware/software develop, new types of media programming become possible, although it takes time for educators and communicators to take advantage of a changed situation. The most obvious illustration of this process is the 'transistor revolution' in radio in the 1950s, whereas radio had previously been confined to electrified areas of the globe, radio reception spread to virtually the entire world. Less than ten years after the development of the transistor receiver, the audio-cassette recorder was developed. This device allows for inexpensive and simple production of audio materials. Fifteen years after the development of the cassette recorder, educators and communicators are now beginning to apply the tool to decentralizing and deprofessionalizing radio production. (Gunter, Super 8: The Modest Medium, p. 12.)

Advantages

Numerous advantages are claimed and demonstrated for audio materials. In the first place, the equipment necessary

to reproduce or to hear them is uncomplex and easy to operate and, compared with many other media devices, relatively low in cost. The audio media resources themselves are now produced in large quantities (even in developing countries) and on almost every conceivable subject. Moreover, they lend themselves to mass production and mass distribution; once an audio master is made, copies may be reproduced inexpensively in any or all of several forms---cassette, reel, or disk. Tape recordings (cassette, reel, magnetic belt) may also be used and re-used, almost indefinitely, thus reducing the cost of the medium.

Schramm sums it up for radio:

> If there is a medium for nonformal education, it is radio. . . (R)adio is the only broad channel to the rural regions, the one long-range, relatively inexpensive, easily deliverable medium that overleaps the commonest barriers to sharing information with remote places. But in nonformal instruction, as in all the other kinds of instruction we have mentioned, there is really no one medium. . . If radio is the 'chief' medium at this end (the nonformal education) of the spectrum, it is because it provides the most direct channels to the most people. But no country would think of depending for a development campaign upon radio alone. (Schramm, Big Media; Little Media, p. 228.)

Limitations

Limitations of audio materials lie chiefly in the nature of the medium itself---it being "one-channel", essentially using the sense of hearing only. There is "nothing to look at". (But this potential disadvantage may sometimes be overcome effectively through "radiovision, discussed later in this chapter.) There is also the

disadvantage in the spoken audio item that the particular pronunciation or choice of words of the presenter may be unfamiliar to, or even disliked openly by, the listener, thus reducing the utility or effectiveness of the message. Recorded disks tend to wear out, with use, and thus to distort their messages. Sometimes audio tapes may be erased accidentally.

Bowers cites several limitations of radio as a medium for developing country education:

> Radio has a great potential as a medium of communication in rural areas, with the development of reliable battery-powered receivers. It also has a number of disadvantages as a medium for nonformal education in developing countries. The brief impact of the spoken word may be excellent for arousing interest or giving quick and simple information, but it is too transitory to convey more complex messages or instill detailed knowledge or skills. Rural people have no reason, and often no means, of telling the exact time, and reception of broadcasts depends on this. There is no direct feedback from audience to speaker and hence no way of knowing who is listening, with how much attention, and whether the message is registering. There is too often a culture gap, and sometimes a language gap, between broadcasters and their audiences. (Bowers, The Use and Production of Media in Nonformal Education, p. 12.)

But Bowers sums up by citing what he considers to be ways to overcome these limitations of radio as a nonformal education medium:

> Being a mass medium, the radio is not a very efficient or economical channel for getting specific messages to selected target audiences. These inbuilt difficulties have to some extent been overcome by organizing listening groups or radio forums. The essential features of this strategy are that listeners are formed into study and discussion groups by 'monitors', teachers, or extension workers. They

> bring the groups together at the right time, arouse their interest in the programme, indicate what they may get out of it, switch on the receivers, lead discussion afterwards, possibly provide some supporting literature, and in some cases, test the reactions of the audience and feed back results to the broadcasting agency. (Bowers, The Use and Production of Media in Nonformal Education, p. 12.)

Examples of Use

Several examples of uses of audio materials in developing country nonformal education will suggest their versatility and applicability for improving the lot of the rural, agricultural poor.

The Pila Communication Project, for example, took place in Guatelama during 1976 as a three-week experiment aimed to teach targeted women of families attached to fincas (plantations) fundamentals of nutrition, hygiene, and medical care and to stimulate in them an awareness of their own potential to improve family health conditions. Project funding was by the Pan American Health Organization. (NOTE: the following information is adapted from Development Communication Report, April 1977, pp. 1-3.)

The pila itself was the community laundry center which was chosen as the site of nonformal learning activities. Research into behavior patterns (work, sleep, family care, plantation work, and the like) of these women, in relation to the project goal, resulted in conclusions that:

* Although most women came to the pila once a day, lengths of stay there varied from only a few minutes to several hours. The communication method chosen had to be sufficiently flexible to accommodate these differences.

* Messages used must be communicated orally so the women could control the timing of the message presentation and launder while they listened.

These requirements, plus the facts that a certain amount of repetition of the messages, without distortion, was deemed desirable, that the strategy selected ought to be capable of being continued by the local people after the project had concluded, and that it was necessary to present messages at lowest possible cost with opportunities for local message inputs resulted finally in a decision to employ audio cassettes as the project medium.

Programs contained in the audio cassettes were produced using nonprofessional actors who chose language of the style to which plantation women were accustomed. Health and nutrition messages were woven into radio novelas as spot announcements, songs, local interviews, and questions. Each segment lasted no more than eight minutes, thus enabling even women who might come only to draw water to hear at least one complete health message while in the listening area. Because health messages were repeated in a variety of formats, continuity of listening periods was not essential.

Key points of messages were presented according to a sequential information-motivation-behavior communications formula. Early programs introduced the health ideas; subsequent programs explained their practical significance;

later programs offered practical methods for applying what was learned.

Tapes and playback equipment were distributed by a local teenager to each of the plantation's three pilas, where the day's tape was played four or five times and records kept of the number of women present. Playing schedules were adapted to changes of the women's work assignments. Take-home cassettes and players were also used to supplement the pila system, but this option had only a relatively few takers. Prizes (baby chicks) given to the first hundred persons who could repeat a sentence about the content of one program, were claimed within an hour of the announcement of them.

The "Pila Project" was judged by its researchers to have demonstrated that:

* The audio cassettes and delivery system were sufficiently flexible to adapt to changes in the women's work schedules.
* Women were receptive to the use of the pilas as a nonformal learning site. They enjoyed the programs and were disappointed when they were stopped.
* The programs did produce an immediate attitude and behavior change as targeted by the project.
* Nonprofessionals could be used successfully to produce and act in taped dramas.
* The technology did not get in the way of the project; there were no equipment failures.[1]

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[1]Additional information regarding the Pila Project may be obtained in the study guide, The Communication Factor in Health and Nutrition Programs: A Case Study from Guatemala, by Royal D. Colle and Susana Fernandez de Colle, c/o Department of Communication Arts, Cornell University, Ithaca, New York 14850.

Another project, "Radio Mensaje: Ecuador", highlights exciting possibilities of utilizing audio media in nonformal developing country education. Initiated in 1972, and still under way, the project seeks to cause illiterate Ecuadorian adults to: (1) heighten their feelings of self-worth, (2) participate in community development work, and (3) upgrade their literacy and numeracy skills. The project is tied to the Nonformal Education Project of the University of Massachusetts through grants from USAID. It utilizes campesino-produced audio cassettes prepared under "open broadcast" conditions in an effort to win over a mass audience who are interested in listening to community-related, community-generated radio programming without sophisticated formats, educated accents of performers, and the like. Some 40 audio cassette recorders (purchased by the University of Massachusetts) were given out to auxiliars (unpaid teaching assistants) in the 40 school radio centers in the region surrounding Tabacundo, Ecuador. Each auxiliar uses the equipment to record local audio materials comprising the content of two half-hour radio programs each week. These are unedited and follow no particular format. They contain advice, poems, songs, scripture readings, dramatizations of community problems, testimonials, reading and math lessons, and exhortations. Results of several questionnaire studies showed that among listeners there have been measurable increases in the

percentage of individuals willing to rely on more than "the help of God" in community-development matters. A willingness to participate in radio production practices has also increased (from 56 to 84 per cent) in the 1971-73 period. So far, there have been no significant differences in "self-esteem", however. But correct responses on a community development questionnaire increased from approximately 50% to 62%; and the number of those scoring "high" on a language and math test (between 1971 and 1973) also increased dramatically. (Adapted from Project Profiles. Washington, D.C.: Clearinghouse on Development Communication, 1977. See also James Hoxeng, et al., Tabacundo: Battery-Powered Dialog. Technical Notes on Nonformal Education. Amherst: University of Massachusetts, 1976.)

Bhola describes how radio can be (and often is) used in literacy education campaigns of developing countries throughout the world:

> (C)an radio help the developing countries. . . in making their people literate? The answer is, fortunately, that it can. . . Radio would help solve the problems of inadequate infrastructures because radio waves do not use roads or railways. Radio would help solve the problem of trained manpower because it can put a master teacher in the middle of every listening group. Radio can also reduce to some extent the problem of producing huge quantities of instructional materials.
>
> Most of us visualize radio as a source of entertainment. . . . Our cultural habits in regard to radio have fettered the imagination of both educators and communities. Educators and other decision makers find it hard to change their perception of radio. They cannot think of it as being an instrument of

> education and literacy. . . .Talking individually to the listener in order to teach him how to read and write is not commonly expected of radio.
>
> The studio teacher is a master teacher who is connected with monitors in the field. The radio script is systematically integrated with printed lessons in the workbooks and monitors' guides. These materials are made available to groups and communities in the field. The master teacher speaks in the studio while the monitors in class interpret him to the learners. Sometimes the broadcast is used to teach reading, sometimes to motivate, sometimes to inform about farming, children, health, nutrition, and other interests of the listening groups. (In Burke, The Use of Radio in Literacy Education, pp. 8-10.)

Burke also describes the improvement of radio as an educational medium that can be made through applications of principles of "radiovision":

> It is often argued that radio is inferior to television and film as a means of communication because radio reaches the single sense of hearing, whereas television and film appeal to both hearing and sight. While it is true that radio cannot provide the visual information by means of the medium itself, it is entirely possible to prepare materials with drawings, illustrations, photographs, and other graphic representations to be distributed to the learners as part of their learning experience. This combination of radio broadcasting and printed visual materials (is) known in many countries as 'radio-vision'. (Burke, The Use of Radio in Literacy Education.)

Many other special applications of audio materials (not developed here) may be envisioned for the LKCBCES program: overcoming radio utilization problems through making tape recordings of scheduled broadcasts, duplicating them, and offering them to local users on a short-term loan basis; obtaining cooperation of radio stations, newspapers,

education groups, foundations, church-related groups, and others to initiate audio tape networks for the exchange and distribution of useful items in a region or country; local LRC development of handmade books (with drawings, photographs, and handwritten or typed notes), accompanied by an explanatory or "guided tour" type of audio tape to facilitate learning from it; installing battery-charging stations in the LRC to serve users from non-electrified areas; and many others.

VIII. MEDIA UTILIZATION: PICTORIAL (STILL)

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. Ch. 5, "Transparencias para Retroproyeccion"; Ch. 6, "Imagenes Fijas"; Ch. 10, "Fotografia"

Brown-Lewis (Eds.), Instruccion Audiovisual: Manual de Ejercicios. 13. "Como Montar Fotografias"; 18. "Como Tomar Fotografias Fijas"; 19. "Copiado Con Una Camera de Fotografia Fijas"; 22. "Desarrollo de Una Presentacion de Diapositivas en Una Sola Pantalla"; 23. "Desarrollo de Presentacion en Pantallas Multiples"; 32. "Seleccion de Fotografias Planas"; 37. "Filminas". Secciones de Referencia: 3-- "Equipo y Tecnicas Fotograficos".

* * *

Pictorial (Still) Types

The following types of pictorial (still) media are ordered from those requiring mechanical means for production and use to those easily used with no mechanical aids:

Audiocards
Audioslides (3M types, Eastman, others)
Filmstrips
Slides (2" x 2", 3¼" x 4")
Transparencies, opaque projector
Stereo pictures
Flat pictures-photographs, printed pictures
Drawings, paintings

Description

The pictorial (still) category includes mostly two-dimensional, still materials designed to be observed directly or projected. (Three-dimensional slide wheels, Sawyer-type, are available.) The media used are especially designed for

pictures, but may also include writing and other symbolic and graphic information. All visuals are intended to provide concrete examples of verbal abstractions. Media in this section range from slides and filmstrips that require special equipment to produce and show them to simple flat pictures or drawings that are easily developed by teachers and students. Audiocards are cards (often with pictures) with a narrow strip of audiotape imprinted along their bottoms that permits an audio commentary to be given with use of an appropriate reproducer. With them, the learner simply inserts the card in a special machine in order to hear the tape. Audioslides combine a slide with an audio recording that can be played as the slide is shown. Filmstrips are lengths of film that permit presentation of a series of still pictures one at a time. These pictures may include captions or be accompanied by a taped narration or a written script intended to be read aloud by a monitor. Slides are transparent film images intended for projection. They range in size from the 2 inch by 2 inch dimension to those that are 3¼ inches by 4 inches (lantern slides). Transparencies are images larger transparent sheets which are projected by means of an overhead projector. The opaque projector can be used to project images of opaque, flat objects (such as paper based photographs) on a screen. A stereoscope provides a three-dimensional image by feeding a different picture to

each eye, using a polarizing screen (glasses). Photographs are images recorded on photosensitive material by exposure to light. Flat pictures include photographs and also images produced by drawing, painting, printing, or other graphic techniques.

Advantages

All materials in the pictorial (still) category are sufficiently small to be easily stored and transported. Overhead projection (large transparencies) has the particular advantage of instructor control. Large transparencies focus student attention as the instructor uses the visual as an "electronic chalkboard", drawing on the transparency while elaborating or explaining details of the lesson. Transparencies can include special features such as overlays. A single transparency can become a series of charts by the addition of overlaid sheets adding new information to the original. Teachers can prepare their own transparencies by drawing directly on acetate, without using complex duplicating methods. A single copy can be seen by all students. Some transparencies (of the handmade type) can be used and reused because anything written on them can be erased. The method of overhead projection can also be used to show outlines of real, solid objects or the internal structures of transparent ones.

Filmstrips are especially suited to the presentation of ideas in sequence. A single filmstrip can be used for

different purposes and in different contexts by the addition of narration that relates the pictures to local experience. Because the fixed order of filmstrips structures the learning experience, they are especially useful in learning centers. Filmstrips show a series of still pictures so that the speed at which information is shown is controlled. With this medium, a process or procedure can be broken down into a number of easily comprehended still pictures that facilitate presentation of considerable detail. In addition, classes can produce their own filmstrips from copied pictures or by drawing directly on transparent filmstrip material.

Audiocards are often used for teaching reading. They allow the student to listen to the taped track portion and to record a response or to repeat what is heard. Results can then be checked later by an instructor. Audioslides offer the convenience of providing taped information to accompany each slide. Slides as a group are flexible because they can be assembled in any order and deletions or additions can be made at will. Stereo (stereoscopic) pictures have the unique feature of providing a three-dimensional perspective to what is seen. One stereoscopic form employs cards composed of pairs of pictures that can be inserted into a special viewing machine. The viewer then sees an image much as it would appear with normal binocular vision. This may be especially helpful in working with learning about machinery or construction techniques where depth of

field and three-dimensional perspective are important. Flat pictures are highly adaptable visual media. They can be teacher- or student-produced, or collected from other sources. Individual pictures can often be used for a variety of purposes. Photography itself (the making of pictures) can be an important learning experience for students as well. In addition, through closeups, enlargements, stop-action, and other effects, photographs can often present instructional information which is difficult or impossible to present through other media.

Limitations

Almost all of the pictorial (still) media require special equipment for use in a group setting. In fact, each requires its own kind of equipment for production and presentation. Audiocards and audioslides are highly specialized kinds of visual media whose use is limited to the specific purpose for which they have been prepared. Although transparencies are easily prepared, they are not generally suitable for presenting large amounts of information. All media but the audiocards, audioslides, and filmstrips are meant to be subsidiary and not primary teaching aids; they require the presence of an instructor to provide narration or other interpretation and directions. Audiocards, audioslides, filmstrips, slides, and overhead or opaque projectors are dependent on electricity for operation. This dependence is being solved partly by the

recent development of sun-powered filmstrip projectors and battery powered microfiche readers that are accompanied by similarly battery-powered audio tape playbacks.

Examples of Use

Tisa recommends that nonformal educators maintain slide libraries covering different topics likely to be useful with rural development programs. He says:

> Field workers would be in a good position to take pictures of insects, results of diseases, etc., which could then be sent to the Center for development and cataloguing. Various members of the team should be equipped on their rounds in the field with simple-to-operate cameras. The encadreurs (people trained by the Center) and villagers could point out subjects of interest. We would then be able to gather pertinent visual information at different times of the year (such as grasses throughout their seasonal changes). (Tisa, Mali Livestock II. Final Report, Livestock and Range Development in the Dilly Area: Media and Communications Aspects, p. 24.)

Tisa further suggests that filmstrips could be tailor-made by selecting appropriate slides from the central library and duplicating them as a 35mm filmstrip on continuous piece of 35mm film.

In order to use pictures effectively, they must be made durable. With larger pictures, one way to do this is to paste them on cloth. Hem the cloth border by hand or with use of a sewing machine, thus providing a kind of frame to protect picture edges.

Saunders suggests various other ways to displaying pictures to increase their durability and to provide greater

visibility for them:

* Make a wooden picture frame with a slot along one edge so that the picture may be slid in and out.

* Hang several pictures from a wire or rope, using ordinary clothespins to secure them.

* Attach pictures related to discussions to a metal board, using magnets; or with clay to a chalkboard.

* Draw attention to a single large picture by mounting it temporarily between pairs of wood slats at top and bottom. When working with large groups, the picture might then be hoisted above heads of the audience, using a pole of suitable length. (Adapted from Denys Saunders, Visual Communication Handbook, p. 31.)

Pictures may be accumulated in a photocard library. For this purpose, it is desirable that all photos be of approximately the same size and mounted on a stiff backing such as cardboard or manila, or tagboard. Catalog the photos and store them in folders or file boxes or drawers, using tabs to mark different subject areas for easy retrieval.

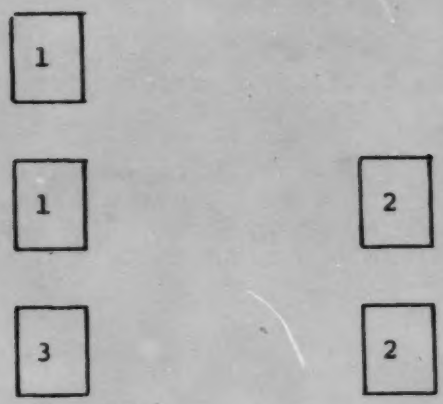
Tisa says, concerning this procedure:

> Such a system provides a flexible resource of visual aids for the teacher or field worker, who could assemble a group of photos in any progression or association he found necessary. The teacher would not be limited, for example, by the pattern set down by flip chart or slide strip. He may even arrange to have subject matter of his choice photographed and mounted for a particular lesson, by the project photo lab. During a lesson, the photocards can be easily passed around or put up on display. They can be used to provoke discussion or to monitor a student's understanding by asking him to identify and explain the subject illustrated. Versions of the cards can also be made in packets for the encadreurs to take with them and use in the field. In fact, it would be an easy matter to arrange to use photocards during a radio-vision broadcast.

> I suggest that the various experts on the team be asked to give appropriate information or comments on the back of the photos which pertain to their special field. . . Eventually, by accumulating the photocards in appropriate sequences, we would have the makings of a kind of loose-leaf textbook or workbook. (Tisa, op. cit., p. 19.)

Students can contribute to the development of a photocard library by taking pictures themselves. Simple, inexpensive cameras are readily available. Students will be stimulated to learn more about different topics both in order to take effective pictures and as a result of exploring with a camera. If students will be using cameras often, consider setting up a darkroom. The initial investment in equipment and chemicals is worthwhile because of the potential for immediate development of photos and student involvement in the development process.

Pictures can teach effectively by illustrating contrasts. Display one picture, of a sick child, for example. Next to it place a picture of a healthy child. After describing and discussing the difference between the pictures, remove the first picture and replace it with one that also contrasts with the second picture, perhaps a picture of unsanitary cooking practices. Continue to show pictures in parallel fashion in order to reinforce the division of good habits and bad habits.



--Adapted from Denys Saunders, op. cit., p. 40.

Development workers have sometimes produced "audio books" in the form of three-ringed looseleaf notebooks containing sequential arrangements of various pictorial materials---photographs, maps, graphs, drawings or sketches, cutouts from magazines, newspapers, or other sources, plus handwritten, typed, or clipped verbal materials---accompanied by their own (or students') voices on audio tape. Such products are especially useful for individual use, although they may also be used with no difficulty by groups of four or five learners who look on together.

Another useful pictorial media project with considerable utility in developing education might be the cooperative planning, design, and production of a community mural. Designing a mural requires considerable advance preparation, but it is something on which a rather large group of people of varied skills and interests can work. The following

steps are recommended:

* Find a large empty surface such as an inside or outside wall of a building located where many people pass every day.

* Assemble a group of persons interested in creating a mural that everyone can enjoy and that might communicate something of special interest to the community (local history; health drive emphasis; other).

* Decide on the topic.

* Draw, on a large sheet of paper, what the finished mural might look like. Obtain suggestions for improvements and alterations. Complete the rough drawing.

* Transfer the design to the mural surface, either by imprinting the surface slightly with heavy pressure by some instrument or by using the drawing as an approximate scale model (dividing the picture into gridded segments and transferring to the wall mural in enlarged size details that appear in each).

* Once the transfer has been made, engage all group members in the painting, adding colors and details.

* When the mural has served its purpose, the surface can be whitewashed over and re-used for another production.

IX. MEDIA UTILIZATION: SYMBOLIC, GRAPHIC

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologia, Medios, y Metodos. Ch. 3, "Los Exhibidores y Algunos Fundamentos de Communicacion Visual"; Ch. 4, "Materiales Graficos".

Brown-Lewis (Eds.), Instruccion Audiovisual: Manual de Ejercicios. 5. "Como Trazar Letras"; 6. "Dia positivos y ayudas para Trazar Letras"; 7. "Diseño de Periodicos Murales"; 8. "Diseño Exhibidores"; 9. "Bosqejos Simples"; 10. "Tecnicas de Pizarrón"; 11. "Graficas y Lineas de Tiempo"; 12. "Tablero Magnetico y Franeloografo"; 39. "Mapas y Globos".

* * *

Symbolic, Graphic Types

The following types of symbolic and graphic items are listed in order from those requiring specific (and sometimes fairly expensive) base materials on which to place them to those easily produced on location without need for such base materials (other than paper):

Chalkboards, magnetic boards
Clothboards (flannelboards)
Displays--bulletin boards, peg boards
Flipcharts, strip charts, pullcharts
Maps, globes
Dioramas, 3 dimensional displays
Graphs--bar, line, circle, pictogram
Flow charts, diagrams--tree, stream, time line
Mobiles
Cartoons
Posters
Flashcards

Description

This group consists of media for visual displays. Although words or pictures may form significant parts of such displays, their primary characteristic is the use of symbols and graphic principles to present ideas and facts. Chalkboards are boards with smooth surfaces prepared for writing on with chalk or other easily erased material. Magnetic chalkboards are metal surfaces that have been painted with chalkboard paint so that they can be used for writing with chalk as well as to attach projects by small magnets. Clothboards are stiff boards covered with flannel, felt, or other adhering material. Objects to be placed on the clothboard are cut out or made out of cloth that will itself adhere to the flannel board or which will have a piece of such cloth attached to their backs. Bulletin boards can be made out of materials that will stand upright to permit pictures or other objects to be placed on them for display. Pegboards are firm boards with holes for brackets or hooks, used for shelves and to hang large objects. Flipcharts are sets of related charts hinged at the top so that the sheets can be used to show a sequence of action or information. Stripcharts are a variation of flipcharts, with strips attached vertically that can be removed progressively. Maps and globes are flat or spherical representations of geographical features. Graphs are diagrams using dots, bars, lines, or other symbols to

represent and visually display the interrelationships of different pieces of information. Flow charts and tree or stream diagrams display information as a sequence of steps in a procedure. Mobiles are arrangements of objects, strung together and hung in the air. Cartoons are drawings that satirize or exaggerate with drawings to make a point. Posters are large pictorial or graphic illustrations for display. Flashcards are cards with words, numbers, or pictures on them designed to be seen briefly, chiefly for drill purposes.

Advantages

All of the various media included in this section are quite inexpensive, portable, and easy to prepare. All but the chalkboard and clothboard require no special materials. All are intended to gain or focus student attention and to stimulate interest through using color, design, and visuals. They can be used under a number of different circumstances; in school or at home, inside or outside, for beginning or advanced learners.

Most of these materials can be prepared or used by teachers or students. The chalkboard, clothboard, flipchart, graphs, and flowcharts are often used to supplement lectures; each could be accompanied by taped or written explanations. Chalkboards and clothboards can be large enough to use with large classes, or they can be made smaller for lap use with small groups. Some materials, such as posters, maps, globes,

dioramas, and graphs, benefit students most when students themselves prepare them. In addition, materials that students can manipulate provide supplemental learning experiences, particularly clothboards and flipcharts.

Bulletin boards are especially flexible media. Valuable materials or materials for which only one copy is available can be mounted on bulletin boards for everyone to read or study. Bulletin boards also provide a means of presenting supplemental material for students, without the need to take the time to cover all of it in class.

Clothboards are well suited to use with simple visuals, such as shapes or concrete items, for an accompanying presentation. With them, as with magnetic chalkboards, the visualized presentation elements may be introduced to view at just the right time and moved around to fit the needs of the message involved.

Limitations

Production of all of the graphic/symbolic materials in the preceding list require considerable ability and experience in communicating visually. The selection and arrangement of materials is crucial to the effect desired. Neither the teacher nor the students can be expected to produce successful graphic/symbolic visuals at first. Bulletin boards need a supply of a variety of different materials to be interesting. They also require several sets of different types of letters, for which instructors can use

stencils, lettering guides, or other alternatives. Cloth-boards, chalkboards, and magnetic chalkboards need special materials---cloth for a board and to make the objects adhere, metal for the magnetic board, special treated surfaces, magnets for backing, chalk for writing. Clothboards are popular, but materials placed on them tend to slip unless special care is taken. The number of cutouts or objects that can be placed on the clothboard is limited. It is difficult to manipulate them without their dropping off. (This can be overcome by the use of Velcro backing for pieces.) The cutouts or objects have to be prepared in advance. Both clothboards and chalkboards require an instructor's presence to write on them or to manipulate objects as required. Sequence charts require the viewer to refocus attention each time a new scene appears. The continuity between each piece must therefore be made explicit.

Examples of Use

Charts or posters drawn or printed on cloth are easily folded and stores or transported. Beverly Emerson Donoghue, teaching in Ghana, had local art students screen-print cloth with illustrations of the eye, the digestive system, and other human biology systems studied in health classes. (NFE Exchange, January 1977, p. 7.)

Bulletin boards and posters can be made more quickly and colorfully through collecting letters cut from magazines,

newspapers, or books. It is necessary to remember that some letters must often be seen clearly from the back of the room.

Bulletin boards are an excellent way to inform the community of what various classes or groups have been doing. As a final project, an instructor might have participants prepare a bulletin board to be placed in a public square to demonstrate what his group learned and what others might be interested to know about. Bulletin boards can be used in this way anywhere people have a chance to stop, look, and think about the information presented--in front of the church, by a bus stop, in the market, or in the public square. Make bulletin boards out of any materials available locally. Use paper, cardboard, or cloth stretched on a reusable wooden frame as the background. Bulletin boards can be free-standing, hung from a ceiling, or propped against a building.

Many visual teaching aids are easily transportable. It is possible to make a folding chalkboard by hinging several panels together, permanently or temporarily, so that it can be carried. Flannelboards are especially useful in extension teaching because they may be folded, carried in a bag, and mounted temporarily wherever a display surface is needed.

Other more specific uses have been made of symbolic/ graphic materials in developing country education. For

example, "Project Poshak", a nonformal nutrition education program in India, employed them effectively:

> The two most important items were the growth chart, which was retained by the mother as a record of her child's weight and progress, and the Poshak flip chart, which was used by the paramedicals both as a guide or lesson plan for subjects to be covered, and as a reinforcement, comprehensible even to an illiterate audience, of the information given during person-to-person contacts. (Higgins, Nonformal Education for the Rural Poor, p. 14.)

Benedict Tisa, in his report on the Mali Livestock program, notes that printed cloth is often used in Mali for advertisement. For example, both women and men wear cloth printed with the name of the newspaper, L'Esser. He suggests that this cloth is popular because it is colorful and cheap and proposes that printed cloth be considered as a means of advertising nonformal education goals and projects. A piece of cloth worn by someone could become a "walking billboard." (Benedict Tisa, op. cit., p. 20.)

In designing posters that will catch people's attention and reach them, consider the use of familiar topics and scenes. One possibility is to illustrate familiar proverbs. The literate will appreciate the association of the proverb with a specific example and the illiterate should be able to think of the proverb upon seeing the example. Choose examples for poster-proverbs that promote goals of local nonformal education projects. New proposals are less likely to meet stubborn opposition when they are tied to cultural

traditions as reflected in proverbs.

No way of reaching people, no matter how small, should be excluded from consideration. Tisa proposes that matchbox covers may be useful locations for printing project slogans or insignia. This unusual location represents good advertising principles because it provides a way of familiarizing large numbers of people with the presence of an education project.

A good demonstration of the value of literacy could be made by posting a single copy of the local newspaper in a public place. Those who are literate could read it to those who are not. The location should be near an area where people gather so that discussions would be encouraged. Local nonformal education personnel could use this opportunity to talk with people about literacy, and also about social, political, and economic conditions and problems. Once this location was established, it could be used also for posting notices of other events and information of interest to the community. It could motivate people to participate in local events and also provide publicity and feedback on ongoing nonformal education projects.

X. DRAMATIC, INTERPERSONAL

Reading: Brown-Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologio, Medios, y Metodos. Ch. 13, "Juegos, Simulaciones, y Dramatizaciones Informales."

Brown-Lewis, Eds., Instruccion Audiovisual: Manual de Ejercicios Intensivos. 17. "Titeres y Teatro de Titeres."

* * *

Dramatic, Interpersonal Media

The following types of media are arranged loosely from those requiring considerable organization and materials to produce and use educationally, such as folk drama, to those requiring very little, such as informal telling:

Folk drama, folk opera, pageants
Plays (formal, written)
Puppetry
Shadow plays
Games, simulations, game boards
Storytelling, songtelling (minstrelry)
Pantomime
Role playing, creative drama, psychodrama
Markets, fairs, swapshops
Telling, lecturing
Discussing (Seminars, Colloquiums)

Description

The above collection of dramatic and interpersonal media includes both folk media (discussed earlier in Chapter IV) and media introduced through educational programs. Folk drama and pageants are traditional dramatic forms of entertainment; sometimes highly ritualized, connected with

the church, and held at the same time every year. Plays are dramatic presentations with individuals acting out assigned parts in a predetermined fashion, according to a script. With puppetry, small figures are manipulated to act out characters and events. In shadow plays, the actors are behind a screen and the audience watches their shadows act out events. Games are structured activities with set rules for play, in which two or more participants interact to reach clearly designated instructional objectives. They may require a game board or not; they may be card games, which do not, for example. Simulations provide models of the real world that pose problems or set up limited situations in which students can interact with the situation rather than just with other students. There may be no winner and the result is usually a changed condition or situation achieved by participants. Storytelling involves a single person telling or retelling a story dramatically without acting out the parts. In songtelling, or minstrelry, a singer tells a story through song. Pantomime involves acting out a character or event without words. Roleplaying, creative drama, and psychodrama are improvised dramatizations based on some given problem, situation, or emotion. Although particular characters or roles may be assigned, the acting remains unstructured. Markets, fairs, and swapshops are occasions where large groups of people assemble to baiter, buy, or browse. Such occasions are excellent opportunities

for group interpersonal work, discussion, or simple sharing of information. Informal telling (word-of-mouth) can take place any time and is one of the most important ways of introducing new ideas and spreading information.

Advantages

Traditional media (folk media) are useful to nonformal education because they are familiar to community members. They are believable and rich in emotional symbolism. Material presented through these channels is often more likely to be accepted and to result in change than that provided through more "modern" channels. Included in this category are folk drama, storytelling, and whatever other media are commonly found in use in a particular region.

Dramatic media, both traditional media and those introduced from outside, can provide active participation by many people. Persons may identify with a role and become involved in the part. The emphasis in these media is enjoyment of participation and not the judging of the quality of a performance. Participants learn skills in interpersonal relationships because they must work together on projects. Everyone contributes and everyone succeeds. Dramatic presentations such as plays and creative drama are effective ways to represent what has just been learned. Roleplaying is most effective when the situations used are familiar to the participants. Roleplaying is often used particularly with topics that are controversial or too emotional to discuss

easily. Talking through a puppet or another character as in roleplaying encourages people who have trouble communicating in groups to participate actively and to express their views freely. All the dramatic media can be audio- or videotaped for later discussion and feedback.

Games and simulations also provide for student involvement and motivation. Some games depend on chance; anyone can win. Some games, such as card games, can be played over and over again with enjoyment. Simulations teach decision-making skills, based on real life elements. Simulation games give structured rules for the interaction and offer the excitement of a definite result. Real-life simulation units are extensions of the mockup and allow for practice without the complexity of the real situation. All of these promote the skill of working together and can be performed in groups without the presence of an instructor. To suit local needs, and interests, games and simulations can be teacher- and student-developed.

Disadvantages

One criticism of the use of folk media to promote nonformal education goals is that it represents the manipulation by outsiders of something belonging to the people. Using folk media as a channel for alien ideas may thus destroy their value and meaning for the native group. The introduction of contemporary messages can affect the traditional media's legitimacy and credibility. However, folk media are not

static and for them to adapt to new conditions in the country is a part of the natural process of change.

Games and simulations are inappropriate for many conditions. Simulations can continue for a long time and remain unresolved, which is unsatisfying to the participants. Games are limited by some of the following factors: whether or not they have a game board, reusability, size of group involved as players, adaptability to different conditions, and clarity of directions. In addition, many commercial games are elaborate, including a variety of playing elements, and expensive Games, simulations, and almost all of the dramatic media also require extensive discussion afterwards to establish what is learned, particularly since each participant has a different perspective on what happened during the activity.

Examples of Use

There are many exciting examples of effective uses of dramatic, interpersonal media techniques in nonformal education for developing countries. Bowers describes a "face-to-face"oral strategy:

> . . . typified by traditional agricultural extension and advisory services---extension agents in personal contact with farmers---or by the Indian community-development programmes---village-level workers, of both sexes, working with the people of ten villages or so. . . What media policy should be related to this strategy? Emphasis will be on the spoken word and the demonstration of real objects. . . . The information they need must be processed and packaged in simply written, clearly illustrated manuals and other training aids. (Bowers, The Use and Production of Media in Nonformal Adult Education, pp. 4-5.)

Schramm describes the group itself as a "medium", saying:

> . .One component of successful nonformal education built around instructional media has typically been active local participation, usually in organized groups. The group has become so important in all such programs that it might be considered a medium in its own right. It is a channel for talking things over at the receiving end, for encouragement, for practice and mutual criticism, for active participation in the operation of one's own school for reinforcing the effort of remote and lonely students, and for assembling social support behind local activity and social change. . . (Schramm, Big Media; Little Media, p. 237.)

Coletta describes the use of indigenous culture itself as a medium for development:

> To overlook indigenous networks of production, distribution and consumption is to be blind to the very life lines of a people's survival. Marketplaces (pasars), where men and women, young and old are buying and selling, squatting and chatting, telling stories, gambling and simply being, have long been a focal point for information exchange. From the omnipresent becak transportation system to the multitude of small artisan shops, indigenous channels for communication and development lay relatively unexplored. Exhibitions and demonstrations on health, family planning, new agricultural techniques, child care and a host of other development themes can be communicated in the environs of the pasar. (Nat J. Colette, "The Use of Indigenous Culture as a Medium for Development," Instructional Technology Report, September 1975, p. 9.)

Many different kinds of folk media can be used. Puppets are effective ways of introducing difficult topics. They can be made to ask questions and to make comments that people would often be afraid to say directly. They can also give advice that might be resented if coming from

another person. It has been recommended that puppets be used as roleplaying instruments and to set up with them familiar situations, exaggerating the characteristics of the people involved. Humorously pointing out problems that people have appears to make it easier to suggest ways to change things. It is easy to make a puppet theater for performances by using a box on stilts with a curtain to hide the operators or by making a screen with a large piece of cardboard propped up. Different background scenes may be used for different stories; taped sound effects or musical background are also recommended.

Folk opera provides another traditionally useful medium for offering nonformal education in rural poor agricultural areas in which this medium has been developed. One example of this comes from Ghana:

> Emmanuel Tettey of the Ghana Broadcasting Division advocates using opera to educate rural audiences in Ghana and other countries. Noting that story-telling is a 'fundamental form of dramatic pastime found in every village', Mr. Tettey suggests that the same techniques developed to teach children morals and tribal traditions could be used to educate the masses, especially illiterates. 'The talented storyteller. . . 'mimics', sings, and dances around the fire to entertain (the children) before they go to sleep. . . The children participate in these songs and dances and in time grow to take over from the old storyteller.
>
> Tettey also notes that folk opera, even in as simple a form as storytelling, can serve as a forum for public opinion. Referring to the European composers of the 19th century who used opera to expound their ideas of humanism and to urge the masses to fight for justice and happiness, Tettey declares that the democratic nature of opera and its ability to portray the most varied aspects of life. . .could

> contribute immensely towards the education of children as well as adults. (Nancy Radtke, "Folk Opera", in Development Communication Report, July 1977, p. 5.)

Simple theatrical dramatizations have also been found useful in promoting campaigns and educational programs in developing countries. One example from the United States demonstrates the approach:

> El Teatro Campesino is, quite literally, the farm workers' theatre, for and by workers. Born of the huelga (strike) of grape pickers in Delano, California, in 1965, short dramatic skits were presented along the picket lines in order to encourage the striking workers and to provide some relief from the somberness of their struggle. These actos (skits) were performed without props, scenery, or stage and were representations of conditions leading up to the huelga and of events occurring in its course.
>
> El Teatro Campesino eventually moved to the stage as well, retaining its simplicity of form and the content of its messages. . . Although its beginning was political, members of El Teatro constantly question its technique and purpose. El Teatro's founder, Luis Valdez, sees a "political root and a spiritual goal. . .
>
> In the course of its expansion, El Teatro saw its primary audience grow from the campesino to all Chicanos; its rallying cry was no longer La Huelga, but La Raza (the race). The political aim was put into perspective: in this larger arena, the social struggle is seen in terms of spiritual awakening. . . El Teatro's repertoire now includes, in addition to the full-length plays, puppet shows, actos, dramatic literature, and films. (Susan Hostetter, "Nonformal Education at Work in the U.S.: El Teatro Campesino", in Development Communication Report, September, 1975, p. 7.)

A second example of theatrical contributions to developing country nonformal education, especially for adults, comes from Jamaica, with its "Drama for Progress" program:

Five hundred thousand Jamaicans out of two million are illiterate. One talented and dynamic woman, Pauline Stone, has given up a lucrative insurance job in Kingston to combat her country's incidence of illiteracy through an ingeneous means: folk theatre. Until recently, theatre was accessible only to the urban and wealthy. Now, over forty Jamaican towns and villages have played host to voluntary actors and stage technicians who have come to present "Drama for Progress," a folk program designed to help illiterate villagers grasp why and how they can learn to read and write.

Costs are low and ingenuity and dedication are high as a play is presented. The actors are usually secondary school literature or drama enthusiasts who donate their time. A market place may be transformed into a theatre or borrowed Public Works Department truck turned into a stage. Props consist of nothing more than colorful, comically baggy village costumes and simple furniture. Publicity derives from a loudspeaker which blasts popular music just before showtime.

The Jamaican folk theatre consciously avoids a "top-down" approach. The staff and volunteers spend hours listening to villagers and from such conversations and from their own rural experience they adopt themes based on real and everyday issues. They utilize a long tradition of (sometimes frightening) folk characters, and devise plots which will contain suspense. They will tirelessly rehearse the patois banter and search for sure punchlines. "Drama for Progress" ends its performances with a lively musical number: a calypso song written in patois for the literacy campaign. By using traditional folk characters, by reaching the rural people in their language where they live and work, "Drama for Progress" is a moving example of how to motivate citizens to join National Literacy Campaign classes. (Arthur Gillette, "Rough Theater Serves Literacy in Jamaica," Instructional Technology Report, September 1975, p. 5.)

Schramm sums up the case for interpersonal communication in developing country education, saying:

> . . .(T)he most desirable medium is the one that is most readily available and fits a given need in a given place at a given time. And if we seek still further for an accurate statement, we have to say that a combination of media can be more effective than any one medium in nonformal use. . . And in the interests of still greater accuracy, we must point out that interpersonal communication is perhaps the one indispensable channel of nonformal education. (Italics added.) Whether in the form of information passed from friend to friend, or from a change agent or tutor to a prospective a daptor or a student, or communication in a group, it is part of every program of nonformal education, and on occasion has been known to carry on the program entirely without the aid of mass media. (Schramm, Big Media; Little Media, p. 260.)

XI. MEDIA UTILIZATION: THREE-DIMENSIONAL, REAL

Reading: Brown, Lewis, and Harcleroad, Instruccion Audiovisual: Tecnologias, Medios, y Metodos. Ch. 11, "Cosas Reales, Modelos, y Demonstraciones"; Ch. 12, "Recursos de la Comunidad".

Brown-Lewis, Eds., Instruccion Audiovisual: Manual de Ejercicios Intensivos. 28. "Materiales Gratuitos y Poco Costosos".

* * *

Three-Dimensional, Real Types

Materials in the three-dimensional, real category include the following, arranged in order from real things to created real resources:

Field trips
Demonstrations
Specimens, collections
Models, mockups
Experiments
Exhibits, displays
Dioramas
Sandtables
Toys

Description

Media in the three-dimensional, real category are all real things; they may be either unmodified, modified, or three-dimensional representations. Real objects can be removed from the environment and put into an organized study area. They can also be modified for instructional purposes; in models or mockups, by coloring, separating elements, or by using cutaway design methods. Reproductions

of reality, or created real resources, are another way of bringing real objects into the study area. A good field trip is a preplanned and organized visit to one or more places where materials or situations for instruction can be observed in functional lifelike settings. Demonstrations, which may be a part of field trips or performed in a study area setting, are generally performed by instructors to show how to do something. Specimens are elements extracted from the environment that are studied as representatives of a class or group. Models and mockups are reproductions of real things. A model may be a smaller or enlarged representation of the real thing. A mockup is a simplified version of the real thing, designed to highlight essential parts or functions. Experiments are organized trials using controlled conditions to discover relationships and prove or disprove hypotheses. Exhibits and displays provide opportunities to show off real objects and to use them for teaching purposes. Dioramas are life-size or miniaturized realistic representations of a scene in which objects or figures are placed in perspective before a painted background. Sandtables are table top displays, scale reproductions of real things, in which objects or figures are placed on surfaces modeled with sand. Educational toys are of value in developing cognitive or manipulative/motor skills, and, sometimes, for dramatizing certain experiences. The models or displays may include an added factor of motion, either

by electric motors or with levers or buttons activated by viewers.

Advantages

The primary value of using real things in nonformal education is to enable students to see objects as a part of their environment, whether on field trips, in dioramas, or elsewhere. Using real objects helps to break down boundaries between the artificial classroom setting and the real world. Real things are, by definition, things that are immediately present. Use of real objects is meant to foster learner involvement, whether in collecting specimens, manipulating models, performing experiments, constructing dioramas, or designing sandtable displays.

Models and mockups are efficient means of representing real objects because they are modified to eliminate unnecessary details. They can be miniaturized or exploded; they can use color, shape, sound, action, texture to provide additional understandings of an object studied. Most models can be assembled by students, thus enabling them to see their inner parts. For example, a model of the human body can teach human internal structure better than a real human body can.

Most real things or three-dimensional displays are relatively self-explanatory. If designed, constructed, or collected by the students themselves, these media represent considerable background research and they can stimulate

further interest in the subject. Simple versions of all these media can be found, constructed, or used under many different conditions.

Limitations

Although three-dimensional, real media may often be self-explanatory, they may require considerable work on the part of the instructor for learners to gain the expected understandings or skills. The learning experience must be very well organized and students fully prepared to participate actively to learn as much as possible from a field trip, for example.

Models and mockups, particularly commercially prepared ones, can be inappropriate teaching aids in a developing rural country environment. Models may be difficult to transport because they are heavy or fragile. With large models there are storage problems. Models are less effective with large groups, where students are unable to examine them individually. Models also cause problems in nonformal education because of the potential confusion between representation and reality. Unsophisticated students may be misled by differences in size, color, or detail between models and the objects they represent--and perhaps be inclined to distrust all models.

Use of real things is particularly difficult because it requires that students see everyday objects in a different light. Teaching students to find something unusual in the

familiar aspects of their environment can be harder than using various audiovisual media specially designed for the same purpose. Good experiments require that the instructor also teach the scientific method, an approach that may be completely foreign to the students. Dioramas and sandtable require complex visualization skills, even though they are three-dimensional representations of three-dimensional things.

Examples of Use

Women, older people, and school age children are often tied up by childcare and prevented from participating in educational programs. LRC personnel may therefore wish to set up day care programs for preschool children in a school room, a learning center, or an individual home and supply them with educational toys, simple games, and art materials so that the children are exposed to a variety of stimuli. Specific skills that can be worked on include pre-reading, oral communication, mathematical relationships, and self-concept. Daycare services can provide important education and training for children as well as give their caretakers time for their own education.

Field trips are a good means of exploiting local resources. Familiar sights can be used to reinforce points one is trying to teach. A group of learners may go out to see fields where different crops are growing. Discussion may center on what crops grow where, how each crop varies from field to field, and what conditions might be expected

to produce the best yield. In order to help learners training for industrial work, they may be taken on a tour of a typical factory or place they might work. They could interview people working in the factory about what skills are required and how one gets a job there. Demonstrations could also be arranged to show how certain machinery is operated and maintained.

Figures, or representations of real objects, may be used in sandtables and dioramas. They can be made out of pieces of metal, scraps of wood, or cardboard, modeled from clay or plastic, or carved from wood.

Real objects can be displayed by mounting them on a board by drilling holes in the board and anchoring them with soft wire or string. Small objects may also be mounted on uniform sized cards and displayed as specimens. Other objects can be embedded in liquid plastic, in order to be preserved, protected, and visible from all sides.

Tisa elaborates on the idea of tabletop displays or models:

> Topographical models, showing watering points, cattle grazing patterns, etc., may be a valuable visual aid. Small toy cows, trees and shrubs placed in a carefully constructed dirt or clay model of a given region, large enough to cover an entire table top, would be an aid in teaching about water conservation and grazing practices. (Tisa, op. cit., p. 21.)

The collecting of specimens can lead to thinking of ways and places to display them--perhaps in a museum. Learners

who work on small, informal local museums can easily develop skills in planning, classifying, packaging, mounting, preserving, and arranging objects. Any place that has room for a collection and for people to see the collection can be a museum. Museums are good publicity because they present concrete evidence of results of nonformal education programs.

Bowers carries the museum idea toward a full-scale exhibition. He says:

> In almost every developing country, weekly markets bring together hundreds of men and women from the surrounding rural area. . . Why do they not construct an exhibition room at a central point in the market place? . . .housing a multimedia exhibition, whose prupose would be to communicate simple messages related to local development problems? The message would be changed every few months, and might be drawn from many aspects of development---agriculture, health, family planning, child care, etc. The basic media--the hardware---would remain largely the same and might include automatic slide- and film-projectors and tape play-backs to explain the exhibits in local language. The software would change with the message and would include real objects, models, photographs, drawings, and loop films. . . (Bowers, The Use and Production of Media in Nonformal Education, p. 8.)

Bowers continues with this idea, elaborating upon what might be expected to occur in the exhibition facility:

> How would it work?
>
> Imagine that there are exhibition rooms in six of the market towns of a small country. It is a season when outbreaks of cattle disease occur. An exhibition of this disease has been planned, researched, and prepared over the past few months, by an adult education media unit in collaboration with the Veterinary Department. Six identical sets of the software have been installed in the exhibition rooms. . . .

Outside the door of the exhibition a coloured poster shows an infected bull. Above the door, a loud-speaker, linked to a loop tape playback, announces every few minutes: 'Do you own cattle? Cattle disease kills. Come in and see.' The visitor then enters the hut, where he is channelled round a logical order of exhibits. The first might include a full-size model of a cow's head with a dripping nose characteristics of the disease, and other media indicating how to recognize it and how it is caused. The second section might show ways of curing the disease, in pictures and coloured slides, or a loop film with commentary repeated every few minutes. The third would ask, with posters and an amplified loop-tape: 'Do your cattle have this disease? If so, inform the veterinary office.' Finally, on leaving the exhibition, the visitor would be given a leaflet recalling in simple language and pictures what he has seen. (Bowers, The Use and Production of Media in Nonformal Education, p. 9.)

APPENDIX

APPENDIX A

INSTRUCTIONAL/EDUCATIONAL TECHNOLOGY-RELATED ORGANIZATIONS (WORLDWIDE)

Introduction

Organizations listed in this section have, in most cases, been willing and able to supply helpful information for this report. LRC-related personnel will find them to be sources of useful reports and factual data pertaining to media utilization and instructional/educational technology in developing countries. They are arranged here in the following order:

	Page
United States	145
Canada	154
Latin America and the Caribbean	155
Europe (including United Kingdom)	161
Asia	165
Australia	167
Africa	167

UNITED STATES

Academy for Educational Development, Inc.
680 Fifth Ave.
New York, NY 10019

Adult Education Association for the United States of America
810 18th St. N.W.
Washington, D.C. 20006

Agency for International Development (AID)
U.S. Department of State
Office of Public Affairs
Washington, D.C. 20523

Agricultural Cooperative Development International
1430 K Street N.W.
Washington, D.C. 20005

AID Report Distribution Center
3853 Research Park Drive
Ann Arbor, Michigan 48104

AID Research and Development Abstract Service (ARDA)
Room 2675
New State Department Building
Washington, D.C. 20523

American Anthropological Association
1703 New Hampshire Avenue N.W.
Washington, D.C. 20202

American Home Economics Association
International Family Planning Project
2010 Massachusetts Ave. N.W.
Washington, D.C. 20036

American Library Association
50 East Huron St.
Chicago, Ill. 60611

American Universities Field Staff
P.O. Box 150
Hanover, NH 03755

Appropriate Technology Department
University of Wisconsin
610 Walnut St.
Madison, Wisconsin 53706

Asia Foundation
22 E. 40th St.
New York, N.Y.

Association for Educational Communications and Technology
1127 16th St. N.W.
Washington, D.C. 20036

Carnegie Corporation of New York
437 Madison Avenue
New York, NY 10022

Center for Development Technology
Box 1106
Washington University
St. Louis, Missouri 63130

Center for Educational Technology
School of Education
Florida State University
Tallahassee, Florida 32306

Center for Interamerican Relations
680 Park Ave.
New York, N.Y. 10021

Center for International Education
School of Education
University of Massachusetts
Amherst, Massachusetts

Center for International Studies
Massachusetts Institute of Technology
77 Massachusetts Ave.
Cambridge, Mass. 02139

Center for Latin American and Caribbean Studies
University of Illinois at Champaign-Urbana
1208 West California Avenue
Urbana, Illinois 61801

Center for Latin American Studies
University of Pittsburgh
Pittsburgh, Pennsylvania 15260

Center for Personalized Instruction
Georgetown University
Washington, D.C. 20057

Children's Television Workshop
One Lincoln Plaza
New York, N.Y. 10023

Children's Theater Association of America
c/o American Theatre Association
1029 Vermont Ave. N.W.
Washington, D.C. 20005

Clearinghouse on Development Communications
1414 22nd Street N.W.
Washington, D.C. 20037

Commonwealth Fund
1 East 75th Street
New York, NY 10021

Community Systems Foundation
1130 Hill St.
Ann Arbor, Michigan 48104

Council of Educational Facilities Planners (CEEP)
29 West Woodruff Ave.
Columbus, Ohio 43210

Defense Language Institute (DLI)
Presidio of Monterey
Monterey, California

Department of Educational Research
Florida State University
Tallahassee, Florida

East-West Communication Institute
East-West Center
1777 East-West Road
Honolulu, Hawaii 96822

Educational Development Center, Inc.
55 Chapel St.
Newton, Mass. 02160

ERIC Clearinghouse on Information Resources
School of Education
Syracuse University
Syracuse, N.Y. 13210

ERIC Clearinghouse on Rural Education and Small Schools
New Mexico State University
Box 3AP
Las Cruces, N.M. 88003

Extension Service
U.S. Department of Agriculture
Washington, D.C.

Farm Film Foundation
1425 H. St. N.W.
Washington, D.C. 20005

Ford Foundation
320 East 43rd Street
New York, NY 10017

Franklin Book Program
1221 Avenue of the Americans
New York, NY 10020

Hoffman Export Corp.
4423 Arden Dr.
El Monte, California 91734

ILO Branch Office in Washington
1750 New York Avenue N.W.
Washington, D.C. 20006

Information Center on Instructional Technology
(See Clearinghouse on Development Communication)

Institute for Communication Research
Department of Telecommunications
Indiana University
Bloomington, Indiana 47401

Institute for Communication Research
Stanford University
Stanford, Calif. 94305

Institute for Communication Research for Development File
Institute for Research
Department of Communications
Stanford University
Stanford, Calif. 94305

Institute for International Studies in Education
Nonformal Education Information Center
Michigan State University
513 Erickson Hall
East Lansing, Michigan 48824

Institute for Mathematical Studies in the Social Sciences (IMSSS)
Ventura Hall
Stanford University
Stanford, California 94305

Instructional Development, Innovation, and Education Technology Center
University of Puerto Rico
Rio Piedras, Puerto Rico

Information Center on Children's Cultures
U.S. Committee for UNICEF
331 E. 38th St.
New York, NY 10016

Information Center on Nonformal Education
College of Education
513 Erickson Hall
Michigan State University
East Lansing, Michigan 48824

Institute for Communication Research
Stanford University
Stanford, Calif. 94035

Institute of International Education
809 United Nations Plaza
New York, NY 10017

Intercultural Communications Network
107 MIB
University of Pittsburgh
Pittsburgh, Penn. 15260

International Communication Association
Box 7728
University Station
Austin, Texas 78712

International Council for Educational Development
680 Fifth Avenue
New York, NY 10019

International Council on Education for Teaching (ICET)
One Dupont Circle
Washington, D.C. 20036

International Development Research Center
Geology 541
Indiana University
Bloomington, Indiana 47401

International Education Center
School of Education
University of California at Los Angeles
Los Angeles, California

International Education Center
University of California at Santa Barbara
Goleta, California

International Industrial Television Assn.
Box 297
Summit, N.J. 07901

International Labor Office
1750 New York Avenue, N.W.
Washington, D.C. 20006

International Photographic Council
623 Stewart Ave.
Garden City, N.Y. 11530

International Reading Association
800 Barksdale Rd.
Newark, Delaware 19711

International Voluntary Services, Inc.
1717 Massachusetts Ave. N.W., Suite 605
Washington, D.C. 20036

W. K. Kellogg Foundation
400 North Avenue
Battle Creek, Michigan 49016

Charles F. Kettering Foundation
5335 Far Hills Avenue
Suite 300
Dayton, Ohio 45429

Language Research Center
Brigham Young University
267 Fletcher Building
Provo, Utah 84602

Latin American Center
University of California at Los Angeles
Los Angeles, California 90024

Laubach Literacy, International
Box 131
Syracuse, NY 13210

Literacy Volunteers of America
222 West Onandaga Street
Syracuse, N.Y. 13202

Maryknoll Fathers
Overseas Extension Service
Maryknoll, N.Y. 10545

National Adult Education Clearinghouse
Dept. of Adult and Continuing Education
Montclair State College
848 Valley Rd.
Upper Montclair, NJ 07043

National Association for Public Continuing Education
1201 Sixteenth St. N.W.
Washington, D.C. 20036

National Association of Educational Broadcasters
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

National Council of the Churches of Christ
475 Riverside Ave.
New York, NY 10027

National Council on Year-Round Education
Research Learning Center
836 Wood Street
Clarion, Penn. 16214

National Foundation for the Improvement of Education
1201 Sixteenth St. N.W. Room 804E
Washington, D.C.

National Indian Training Center
Bureau of Indian Affairs
U.S. Dept. of the Interior
Box 66
Brigham City, Utah 84302

National Institute of Education
Technological Applications Division
U.S. Dept. of Health, Education, and Welfare
Washington, D.C. 20208

National Multimedia Center for Adult Education
Montclair State College
848 Valley Rd.
Upper Montclair, NJ 07043

National University Extension Association
National Center for Higher Education
One Dupont Circle
Washington, D.C. 20036

Nonformal Education Center
285 Hills House So. 285
Univ. of Massachusetts
Amherst, Mass. 01002

Nonformal Education Information Center
Institute for International Studies in Education
513 Erickson Hall
Michigan State University
East Lansing, Michigan 48824

Northwest Regional Education Laboratory
710 S.W. Second Ave.
Portland, Oregon 97204

Organization for Economic Co-Operation and Development
OECD Publications Center
1750 Pennsylvania Avenue N.W.
Washington, D.C. 20006

Organization of American States
19th St. and Constitution Ave. N.W.
Washington, D.C. 20006

Orientation and Media International
P.O. Box 424
Pacific Grove, California 93950

Overseas Development Council
1717 Massachusetts Avenue N.W.
Washington, D.C. 20036

Overseas Liaison Committee
American Council on Education
11 Dupont Circle
Washington, D.C. 20036

PASITAM, Program for Advanced Studies in Institution
Building and Technical Assistance Methodology
Indiana University
1005 East Tenth Street
Bloomington, Indiana 47401

Planned Parenthood Federation of America
810 Seventh Ave.
New York, N.Y. 10019

Population Reference Bureau
1754 N. Street N.W.
Washington, D.C. 20036

Program in International Education Finance
School of Education
University of California
Berkeley, California 94720

Research Center in Economic Development and Cultural Change
University of Chicago
5801 Ellis Ave.
Chicago, Ill. 60637

Rockefeller Brothers Fund
49 West 49th Street
New York, NY 10020

Rockefeller Foundation
111 West 50th Street
New York, NY 10020

Society for International Development
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

SPIRES. See Institute for Communication Research for Development File (DEVCOMM).

SRI International
333 Ravenswood Ave.
Menlo Park, Calif. 94025

Stanford International Development Committee (SIDEC)
School of Education
Stanford University
Stanford, Calif. 94305

Stanford Research Institute
See SRI International

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

Technical Assistance Bureau
U.S. Department of State
2201 C Street N.W.
Washington, D.C.

Technical Assistance Information Clearinghouse
American Council of Voluntary Agencies for
Foreign Service, Inc.
200 Park Ave. South
New York, N.Y. 10003

Technological Applications Project (TAP)
8660 Miramar Rd. Suite M
San Diego, Calif. 92126

Tinker Foundation
645 Madison Avenue
New York, N.Y. 10022

Twentieth Century Fund
41 East 70th St.
New York, NY 10021

UNICEF
Public Information Division
United Nations
New York, N.Y. 10017

U.S. Information Agency
1776 Pennsylvania Ave. N.W.
Washington, D.C. 20547

University of California at Los Angeles
Latin American Center
Los Angeles, California 90000

VITA. See Volunteers in Technical Assistance

Voice of America
U.S. Information Agency
330 Independence Ave.
Washington, D.C. 20547

Volunteers in Asia, Inc.
P.O. Box 4543
Stanford, California 94305

Volunteers in Technical Assistance (VITA)
3706 Rhode Island Avenue
Mt. Rainier, Maryland 20822

World Bank
1818 H. Street N.W.
Washington, D.C. 20433

World Bank, Latin American Division
1818 H. Street N.W.
Washington, D.C. 20433

World Education
1414 Sixth Avenue
New York, N.Y. 10019

World Film Directory
317 East 34th St.
New York, N.Y. 10016

World Neighbors
5116 N. Portland Avenue
Oklahoma City, Oklahoma 73112

World Water Resources, Inc.
7315 Wisconsin Avenue N.W.
Bethesda, Md. 20014

CANADA

Brace Research Institute
Agricultural Engineering Bldg.
MacDonald College
McGill University
Montreal, P.Q., Canada

Canadian International Development Agency
122 Bank Street
Ottawa, Ontario, K1A 0G4 Canada

International Council for Adult Education
252 Blair St., West
Toronto, Ontario, M5SIV6 Canada

International Development Research Centre
Population and Health Services
500 Pebb Bldg.
2197 Riverside Drive
Ottawa, Ontario, Canada

National Film Board
P.O. Box 6100
Montreal, Que. H3C 3H5
Canada

Ontario Institute for Studies in Education
252 Bloor Street W.
Toronto, Ontario 181
Canada

Scarborough College
University of Toronto
Toronto, Canada

LATIN AMERICA

Accion Cultural Popular (ACPO)
(Radio Sutatenza)
Calle 20, 9-45
Apartado Aereo 7170
Bogota, Columbia

Accion Cultural Loyola
Sucre, Bolivia

Accion Cultural Popular Hondurena (ACPH)

Konrad Adenauer Foundation
Apartado 4951 Miraflores
Lima 18, Peru

Asociacao Brasileiro de Teleducacao
Brasil

Associacion Chilena de Tecnologia Educativa
Chile

Asociacion Interamericana de Radiodifusion
Aereo Apartado Postal 720
Edificio Palomo
San Salvador, El Salvador

Asociacion Latinoamericana de Educacion
Radiofonica (ALER)
Corrientes 316
6th Piso Oficina 655
Buenos Aires, Argentina

Asociacion Latinoamericane de Teleducacion

Asociacion Latino Americana de Communicaciones Audio-Visuales
P.O. Box 2403
La Paz, Bolivia

Asociacion Latinoamericano de Teleducation (ALTA)
Calle no. 6-56, Of. 403A
Apdo. Aereo 4490
Bogota, Colombia

Associao Brasileira de Teleducacao
Rua Campos de Paz, No. 60
Rio Comprido
Rio de Janeira, Brazil

Caribbean Food and Nutrition Institute

Jamaica

Caribbean Institute of Mass Communications
Univ. of the West Indies
Mona, Kingston 7, Jamaica

Center for Family Promotion and Education

Peru

Center for Information and Documentation
Calza de Atzacapotzalco-La Villa No. 209
Mexico 16, D.F.

Center for Intercultural Documentation
Cuernavaca, Mexico

Center for Multidisciplimary Research in Rural Development

Colombia

Center of Training, Experimentation, and Educational Research (Centro de Perfeccionamiento, Experimentacion, e Investigaciones Pedagogicas)
Ministry of Education
Santiago, Chile

Centro Andino de Communicaciones (CADEC)
Casilla 2774
Cochabamba, Bolivia

Centro Audio Visual Educativo
Liverpool 65-206
Mexico 6. D.F.

Centro Audiovisual Planning
E.S.T. S.A.
Av. Wilson 1334
Lima, Peru

Centro de Documentacion en Comunicacion Educativo (CENDOC)
Casilla 16. 417, Correo 9
Santiago, Chile

Centro de Estudios Latinoamericanos "Romulo Gallegos"
Venezuela

Centro de Teleducacion
Ministerio de Educacion y Culto
Asuncion, Paraguay

Centro de Teleducacion de la Universidad Catolica del Pero
Apartado 5729
Lima, Peru

Centro Internacional de Estudios Superiores de Comunicacion Para America Latina (CIESPAC)
Apartado 584
Quito, Ecuador

Centro Nacional de Tecnologia Educativa
Ministry of Education
Buenos Aires, Argentina

CIESPAL. See Centro Internacional de Estudios Superiores en periodismo para America Latina

Comite Nacional de Radio
Apartado 71
La Ceiba, Honduras

Department of Educational Technology
(Departamento de Tecnologia Educativa)
Ministry of Education
Caracas, Venezuela

Division de Comunicacion Rural, ICA
Apartado Aereo 151123
Bogata, Colombia

Directorate of Educational Television
Ministry of Education
(Direccion de Television Educativa de El Salvador)
El Salvador

Division of Information Diffusion
(Division de Divulgacion)
Ministry of Education
Mexico, D.F.

Editorial Pax-Mexico
Libreria Carlos Cesarman, S.A.
Apartado Postal 45-009
Mexico, D.F.
Mexico

Editoriales Trillas
Mexico, D.F.

Educational Broadcasting Service
5 So. Odeon Ave.
Kingston 10, Jamaica

Educational Television in the State of Maranhao
(Fundacao Mananhense de Televisao Educativa)
San Luis do Maranhao, Brazil

Foundation for Higher Education
Colombia

General Directorate for Training and Teacher Improvement,
Curriculum and Educational Media
(Direccion Deneral de Capacitacion y Perfeccionamiento
Docente, Curriculo y Medios Educativos)
Ministry of Education
Bogota, Colombia

ICA--Tibaitata
Division de Comunicacion Rural
Apartado Aereo 151123
Bogata, Colombia

INRAVISION
Div. de TV Educativa
Via El Dora do, CAN
Bogota, Colombia

Instituto/Centromericano De Extension de La Cultura (ICECU)
Cuidad Universitario
Box 2948
San Pedro, Costa Rica

Instituto de Desarrollo Economico y Social Guemes
3950 Buenos Aires, Argentina

Instituto Latinoamericano de la Comunicacion Educativa (ILCE)
Apartado Postal 18-862
Mexico 18, D.F.

Instituto Nacional de Teleducacion
Peru

Instituto Peruano de Fomento Educativo
Centro de Tecnologia Para La Educacion
Peru

Instituto Columbiano Agropecurio
Dursion de Communica cion Social
Apartado Aereo 151123
Apartado Aereo 7985
Bogata, Colombia

Instituto de Estudios Peruanos
Horacio Urtega
694
Lima 11, Peru

Instituto de Investigacion Cultural para la Educacion Popular
Dept. de Difusion
Potosi 421, Cassilla 525
Bolivia

Instituto Latinoamericano de la Comunicacion Educativa (ILCE)
Apdo. Postal 18-862
Mexico 18, D.F.

Instituto Nacional de Radio y Television
Ministerio de Comunicacion
Via El Dorado CAN
Bogota, Colombia

Inter-American Association of Broadcasters
rue Mairlink V eiga 6
13 And.
Rio de Janeiro, Brazil

Interamerican Broadcasters Association
Calle Ti 1264
Montevideo, Uruguay R.O.V.

International Council of Adult Education
P.O. Box 682
Costa Rica, San Jose

JAMAL Foundation
476 So. Camp Rd.
Kingston, 4, Jamaica

Latin American Development Associates (LADA)
P.O. Box 498
Quito, Ecuador

Multinational Project of Educational Technology
Dept. of Educational Affairs of the Organization of
American States
Casilla 16162
Correo 9
Santiago, Chile

National Institute of Tele-Education
Ministry of Education
Peru

OAS Multinational Center
Caracas 101, Venezuela

Peruvian Library Association
Biblioteca Nacional
P.O. Box 3760
Lima, Peru

Program of Basic Rural Education
(Programa de Educacion Rural)
Ministry of Education
Guatemala

Programa Adustramiento Educativo (PAE)
Program of Educational Training
Servisio Nacional de Promocion
Asuncion, Paraguay

Programa Nacional de Teleducacao
(National Program of Teleducation)
Rio de Janeiro, Brazil

Proyecto Centro de Comunicacion Audiovisuales
Apartado 2184
Quito, Ecuador

Proyecto Multinacional de Tecnologia Educativa
Tinogasta 5268
Bueonos Aires, Argentina

Radio Catolica y Escuelas Radiofonicas
Apartado P. 3908
Managua, Nicaragua

Radio "Neustra Senora de Burgos"
Cochamanba, Bolivia

Revista Brasileira de Teleducacao
Brazil

EUROPE

Agrivisual
9 Coniston Rd.
Basingstoke
Hampshire RG22 5HT England

Anti-Poverty, Ltd.
67 Godstow Rd.
Wolvercote
Oxford OSa 8NY
England

ASLIB (Association of Special Libraries and Information Bureaus)
3 Belgrave Square
London SW1X 8 PL
England

British Council
Tavistock House So.
Tavistock Square
London WC1H 9LL, England

British Overseas Development Corporation

Center for Educational Development Overseas
Tavistock House So.
Tavistock Square
London WC1H 9LL
England

Centre d'Information et d'Echanges Television
Agence de Cooperation Culturelle et Technique
39, Boulevard de Magenta
75010, Paris, France

Centre for Educational Development Overseas (CEDO)
Tavistock House South
Tavistock Square
London WC1H 9LL, England

Centre for Educational Research and Innovation
Organisation for Economic Cooperation and Development
Paris, France

Centre for Educational Television Overseas

Community Development Service
Route de Ferney 150
1211 Geneva 20, Switzerland

Dag Hammarskjold Foundation
Ovre Slottsgattan 2
S-75220
Uppsala, Sweden

Development Centre
Organisation for Economic Co-operation and Development
Paris, France

Division of Structures and Content of Lifelong Education
Adult Education
UNESCO
7 Place de Fontenoy
75700 Paris, France

European Broadcasting Union
1 rue de Varembe
Box 193
CH-1211 Geneva 20, Switzerland

Food and Agricultural Organization of the United Nations
Documentation Centre
Via delle Terme de Caracalla
00100 Rome, Italy

Institute of Development Studies
University of Sussex
Brighton, Sussex
England

Intermediate Technology Development Group
9 King Street
London WC2E 8HN
England

International Association for the Study and Promotion of Audio-Visual Methods (AIMAV)
University of Ghent
Faculty of Philosophy and Letters (Marcel de Greve, Gen'l Sec'y)
Blandijnberg 2, 9000
Ghent, Belgium

International Audio-Visual Resource Service (IAVRS)
International Planned Parenthood Federation
18-20 Lower Regent Street
London SW1Y 4PW
England

International Audiovisual Technical Center
Foundation
Lamorinierstaat 236
2000 Antwerp, Belgium

International Broadcast Institute
Tavistock House East
Woburn Walk
Tavistock Square
London, WC1H 9LG, England

International Bureau of Education
Palais Wilson
12211 Geneva 14, Switzerland

International Council for Educational Media
Office Francais des Techniques Modernes d'Education
29 rue d'Ulm
75, Paris 5, France

International Extension College
131 Hills Road
Cambridge CB2 1PD
England

and

42 Store Street
London WC1E7DB
England

International Film and Television Council (IFTV)
Via Santa Susanna, 17
Rome, Italy

International Institute for Educational Planning
7-9 Rue Eugene Delacroix
75016 Paris, France

International Labour Office
Workers' Education Branch
CH1211 Geneva 22, Switzerland

International Planned Parenthood Federation
Central Office
18-20 Lower Regent Street
London SW1Y 4PW
England

International Telecommunications Union
Place des Nations
1211 Geneva 20, Switzerland

Ministry of Overseas Development
Information Department
Eland House, Stag Place
London SW1E 5DH England

Nordic Documentation Centre for Mass Communication Research
P.O. Box 607
University of Tampere
Tampere 10, Finland

Organization for Economic Co-Operation and Development
94, rue Chardon-Lagache
75016 Paris, France

Overseas Visual Aids Centre
Tavistock House South
Tavistock Square
London WC1, England

Oxfam
Educational Department
274 Banbury Rd.
Oxford OX27DZ, England

Radio Nederland Training Centre
Box 222
Hilversum, Netherlands

Radio Santa Maria
Apartado 55
La Vega, Dominican Republic

Radio Sutatenza. See Accion Cultural Popular (ACPO)

Regional Center for Functional Literacy in Rural
Areas in Latin America (CREFAL)
Quinta Erendira
Patzcuaro, Michoacan, Mexico

Society for International Development
Development Reference Service
49, rue de Glaciere
75013 Paris, France

Teaching Aids at Low Cost
Institute of Child Health
London University
30 Guilford St.
London WC1N 1EH England

Tool Foundation
P.O. Box 525
Eindhoven, Netherlands

Director, Division of Methods, Materials, and Techniques
UNESCO
Place de Fontenoy
75700 Paris, France

United Society for Christian Literature
Lutterworth Press
London, England

World Health Organization
1211 Geneva 27, Switzerland

ASIA

Asian Centre of Educational Innovation for Development
and UNESCO
Bangkok, Thailand

Asian Mass Communication Research and Information Centre
39 Newton Rd.
Singapore 11, Republic of Singapore

Communication Foundation for Asia
c/o International Institute of Rural Reconstruction
Silang, Cavite, Philippines

Communications and Development Institute
National Iranian Radio and TV Organization
Teheran, Iran

Development Support Communication Service
United Nations Development Program
P.O. Box 2-147
Bangkok, Thailand

Ghandian Institute of Studies
Varanasi, India

Indian Adult Education Association
17-B Indraprasthra Marg
New Delhi 1, India

Indian Center for Educational Technology
New Delhi, India

Indian Institute of Mass Communications
Ring Road
New Delhi, India 110049

Institute of Mass Communication
University of the Philippines
Diliman, Quezon City
Philippines

International Institute for Adult Literacy
Methods
P.O. Box 1555
Tehran, Iran

Korean Educational Development Institute
20-1, Umyeon-Dong, Gangnam-Gu,
Seoul, Korea

Overseas Book Center
75 Sparks St.
Ottawa, Ontario K1P 5A5 Canada

Southeast Asia Rural Leadership Institute
College of Agriculture
Xavier University
Cagayan de Oro City, Philippines

Space Applications Center
Indian Space Research Organization
Sahajanand College Bldg., 2nd Floor
Ahmedabad 380-015, India

UNESCO Regional Office for Education in Asia
Box 1425
Bangkok 11, Thailand

UPA
594 Logan Avenue
Toronto, Ontario, Canada M4K 3B8

AUSTRALIA

Australian Association of Adult Education
Division of Postgraduate Extension Studies
Box 1346, Canberra City 2601
Sydney, N.S.W. 2033 Australia

AFRICA

Institute of Adult Education
Box 20697
Dar es Salaam
Tanzania

Lesotho Distance Teaching Center
P.O. Box 781
Maseru, Lesotho, Africa

Nigerian Broadcasting
Broadcasting House, P.M.B. 12504
Lagos, Nigeria

Society for the Promotion of Adult Literacy in Africa
P.O. Box 12511
Nairobia, Kenya, Africa

APPENDIX B

APPENDIX B

PERIODICALS OF VALUE TO LRCBCES PERSONNEL

Introduction

Periodicals (magazines, newsletters) listed in this section are believed to be of value to LRCBCES personnel as sources of current information about new developments in instructional/educational technology and in nonformal education generally. They are arranged alphabetically by periodical titles.

Access
Challenge for Change
National Film Board of Canada
P.O. Box 6100
Montreal, Quebec H3C 3H5, Canada

Adult Education
Adult Education Association of the United States
810 18th St. N.W.
Washington, D.C. 20006

Adult Leadership
Adult Education Association of the United States
810 18th St. N.W.
Washington, D.C. 20006

AID Report Distribution Abstracts
AID Report Distribution Center
3853 Research Park Drive
Ann Arbor, Mich. 48104

American Educational Research Journal
American Educational Research Association
1126 16th St. N.W.
Washington, D.C. 20036

Appropriate Technology
Intermediate Technology Development Group
9 King Street Covent Garden
London WC2E 8HN, England

Audiovisual Instruction
Association for Educational Communications and Technology
1126 16 St. N.W.
Washington, D.C. 20036

Boletin de Tecnologia Educativa
Oficina de la OEA en Argentina
Av. de Mayo 760
Primer Riso
Buenos Aires, Argentina

Boletin Informativo
Centro de Documentacion en Comunicacion
Educativa (CENDOC), Casilla 16.417, Correo 9,
Santiago, Chile

British Journal of Educational Technology
Councils and Education Press, Ltd.
10 Queen Anne St.
London W1, England

Communique: Newsletter of Intercultural Communications Programs
Intercultural Communications Network, 107 MIB
University of Pittsburgh
Pittsburgh, Penn. 15260

Community Development Journal
Oxford University Press
Press Road
Neasden, London, N.W. 10, England

Convergence
International Council for Adult Education
252 Blair Street
Toronto, M5SIV6, Ontario

Economic Development and Cultural Change
Research Center in Economic Development and
Cultural Change
University of Chicago Press
5801 Ellis Avenue
Chicago, Ill. 60637

Educacion Popular para el Desarrollo
Instituto de Investigacion Cultural para
la Educacion Popular
Depto. de Difusion
Potosi 421, Cassilla 525
Bolivia

Educational Broadcasting International
Centre for Educational Television Overseas
Wynn Williams Publishers, Ltd.
King Street
Wexham, England

Educational Communications and Technology
Association for Educational Communications
and Technology
1126 16th St. N.W.
Washington, D.C. 20036

Educational Development International
British Council (CEDO)
Peter Peregrinus Ltd.
Southgate House
Stevenage, Herts SGL 1HQ, England

Educational Media International
Modine Press, Ltd.
50 Pine Grove
London, England N20 8LA
England

Educational Media Yearbook
James W. Brown, Editor
R. R. Bowker Co.
1180 Ave. of the Americas
New York, N.Y. 10036

Educational Technology
Educational Technology Publications, Inc.
140 Sylvan Ave.
Englewood Cliffs, N.Y. 07632

Estudios Andinos
Universidad del Pacifico
Lima, Peru

Focus: Technical Cooperation
Society for International Development
International Headquarters
1346 Connecticut Ave., N.W.
Washington, D.C. 20036

ICEM Review
International Council for Educational Media
Office Francais des Techniques Modernes
d'Education (OFRATEME)
29 rue d'Ulm
75 Paris 5, France

Indian Journal of Adult Education
Indian Adult Education Association
17-B Indraprasthra Marg
New Delhi 1, India

Information
British Medical Association
Dept. of Visual Communications
B.M.A. House
Tavistock Square
London WC1H 9JP, England

Information Notes
Division of Structures and Content of
Lifelong Education, Adult Education
UNESCO
7 Place de Fontenoy
75700 Paris, France

Instructional Science
Elsevier Scientific Publishing Co.
Journal Division
Box 211
Amsterdam, Netherlands

Interchange
Population Reference Bureau
1755 Massachusetts Ave. N.W.
Washington, D.C. 20035

International Development Review
Society for International Development
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

Journal of Personalized Instruction
29 Loyola Hall
Georgetown University
Washington, D.C. 20057

Media Asia
Asian Mass Communications Research
and Information Centre
39 Newton Rd.
Singapore 11, Malaysia

Newsletter
International Council for Educational Development
680 Fifth Avenue
New York, New York 10019

NFE Exchange
NFE Information Center (Non-formal Info Center)
Institute for International Studies
in Education, 513 Erickson Hall
Michigan State University
East Lansing, Mich. 48824

Panorama
International Council of Adult Education
P.O. Box 682
San Jose, Costa Rica

Revista de Tecnologia Educativa
Organizacion de Los Estados Americanos
Departamento de Asuntos Educativos
Casilla 16162, Correo 9
Santiago, Chile

Soundings
World Neighbors
5116 No. Portland
Oklahoma City, Okla. 73112

Survey of International Development
Society for International Development
1346 Connecticut Ave. N.W.
Washington, D.C. 20036

TAICH News
Technical Assistance Information Clearinghouse
American Council of Voluntary Agencies
200 Park Ave. South
New York, N.Y. 10003

Telecommunication Journal
International Telecommunication Union (ITU)
Place de Nations
1211 Geneva 20, Switzerland

USIA Communicator
U.S. Information Agency
1776 Pennsylvania Ave. N.W.
Washington, D.C. 20547

Visual Education
National Committee for Audio-Visual Aids in Education
33 Queen Anne St.
London W1M OAL

Vita News
Volunteers in Technical Assistance
3706 Rhode Island Ave.
Mt. Rainier, Md. 20822

WEM Newsletter
World Education Markets, Inc.
Box 30037
Washington, D.C. 20014

World Education REPORTS
World Education
1414 Sixth Avenue
New York, N.Y. 10019

APPENDIX C

APPENDIX C

BIBLIOGRAPHY OF PRINT ITEMS CONSULTED

Introduction

Print items listed in this bibliography were consulted during the process of preparing this report. Those quoted from directly are identified in the report text proper (including specific pages concerned).

Ahmed, Manzoor, and Philip H. Coombs, Attacking Rural Poverty: How Nonformal Education Can Help. Baltimore: Johns Hopkins University Press, 19__.

Ahmed, Manzoor, and Philip H. Coombs, (Eds.), Education for Rural Development: Case Studies for Planners. New York: Praeger, 1975.

Armsey, J. W., and N. C. Dahl, An Inquiry into the Uses of Instructional Technology. New York: The Ford Foundation, 1973.

Arnove, Robert (Ed.), Educational Television: A Policy Critique and Guide for Developing Countries. Stanford: School of Education, Stanford University, 1973.

Aspinwall, Richard, Radio Programme Production: A Manual for Training. Paris: UNESCO, 1971.

Barriga, Patricio, Valerie Ickis, Carlos Moreno, and Enrique Tasiguano, The Facilitator, Technical Note No. 11. Amherst: Center for International Education, University of Massachusetts, 1976.

Barriga, Patricio, and Rodrigo Villacis, Fotonovela - Technical Note No. 13. Amherst: Center for International Education, University of Massachusetts, 1975.

Basic Village Education Project: Third Interim Report, Evaluation Component, University of Florida, July 1976. Washington, D.C.: Academy for Educational Development, 1976.

Bhola, Harbans S., Educational Television in the Third World, 19__.

Bhola, H. S., Learning Resources for Community Education: An Integrative General Model. San Jose: San Jose State University/USAID Project on Learning Resource-Centered Community Education Systems in Latin America, 1977.

Blair, Phil, Learning Resource Center Economic Analysis: A Training Module Preview. San Jose, Calif.: San Jose State University-AID LRCBCES Project, 1977.

Block, Clifford H., Educational Technology and the Developing Countries: A Handbook. Studies in Educational Technology for Development, U.S. Agency for International Development. Washington, D.C.: Academy for Educational Development, Inc., 1972.

Bordenave, Juan Diaz, "The Role of Folk Media: A Point of View," in Instructional Technology Report, No. 12, September 1975, p. 4.

Botham, C. N., Audio-Visual Aids for Cooperative Education and Training. Italy: Food and Agriculture Organization of the United Nations, 1967.

Bowers, John, The Use and Production of Media in Nonformal Adult Education. New York: International Council for Educational Development, 1972. (ICED Background Paper No. 6; P.O. Box 217, Essex, Conn., 1972).

Brown, James W., Ed., Educational Media Yearbook, 1977. New York: R. R. Bowker Co., ann.

Brown, James W., Richard B. Lewis, and Fred F. Harcleroad, AV Instruction: Technology, Media, and Methods. New York: McGraw-Hill, 1977.

Brown, James W., Kenneth Norberg, and Sara K. Srygley, Administering Educational Media: Instructional Technology and Library Services. New York: McGraw-Hill, 1972.

Burke, Richard C., The Use of Radio in Adult Literacy Education. (Literacy in Development Series, H. S. Bhola, Ed.) Tehran: Hulton Educational Publications, Ltd., 1976.

Carnoy, M., and Henry M. Levin, "Evaluation of Educational Media: Some Issues", Instructional Science, No. 4, 1975, pp. 385-406.

Carpenter, M. B., et al., Analyzing the Use of Technology to Upgrade Education in a Developing Country. Santa Monica, California: RAND, March 1970.

Carr, Marilyn, Economically Appropriate Technologies for Developing Countries: An Annotated Bibliography. London: Intermediate Technology Publications, Ltd., 1976.

Cassirer, Henry, Mass Media in an African Context: An Evaluation of Senegal's Pilot Project. Paris: UNESCO (Reports and Papers on Mass Communication No. 69), 1973.

Chadwick, Clifton B., Analisis Sistematico Diseno para el Desarrollo de la Tecnologia Educativa en un Pais en Vias de Desarrollo: El Caso de la Republica de Argentina. Mexico, D.F.: Editoriales Trillas, 1977.

Chadwick, Clifton B., Como Evaluar Materiales Educativos (How to Evaluate Educational Materials). Mexico, D.F.: Editoriales Trillas, 1976.

Chadwick, Clifton B., Tecnologia Educactonal para Personal Docenter (Educational Technology for Teachers). In press.

Cisneros, Heliodoro Diaz, Plan Puebla: Ten Years of Experience as a Nonformal Education Effort to Promote Agricultural Development Among Subsistence Farmers in a Rainfed Area of Mexico. Paper presented at the NFE Conference, Michigan State University, 1976.

Coladarci, Arthur, and Robert Arnove, Educational Television: A Policy Critique and Guide for Developing Countries. A Report to the Ford Foundation, May, 1973.

Colle, Royal D., Cassette Special Communication Systems: A Preliminary Inventory and Outlook for Their Use in Rural Development. East Lansing, Mich.: Conference/Workshop on Non-Formal Education and the Rural Poor, 1976.

Colletta, Nat J., "Use of Indigenous Culture as a Medium for Development: The Indonesian Case." Buffalo: State University at Buffalo, 1976.

Colletta, Nat J., "Whither NFE: The State of the Art," Buffalo: State University at Buffalo, 1976.

Communicating Family Planning: Speak--They Are Listening. Washington, D.C. Agency for International Development, Office of Population, 1974.

Comstock, G., and Maccoby, N., The Peace Corps Educational Television (ETV) Project in Colombia: Two Years of Research. Stanford: Institute for Communication Research, 1966.

Coombs, Philip H., Attacking Rural Poverty. Washington, D.C.: World Bank, 1974.

Coombs, Philip H., The Fourth Dimension of Foreign Policy: Education and Cultural Affairs. New York: Harper and Row, 1964.

Coombs, Philip H., World Educational Crisis: A Systems Analysis. New York and London: Oxford University Press, 1968.

Coombs, Philip H., and Manzoor Ahmed, Attacking Rural Poverty: How Nonformal Education Can Help. Baltimore: Johns Hopkins University Press, 1974.

Coombs, Philip H., and Manzoor Ahmed (Eds.), Education for Rural Development: Case Studies for Planners. New York: Praeger, 1975.

Coombs, Philip H., and Jacques Hallak, Managing Educational Costs. Toronto: Oxford University Press, 1972.

Coombs, Philip H., et al., Integrated Rural Development and Communication: Some Views. Singapore: Asian Mass Communication Research and Information Centre, 1977.

Coombs, Philip H., Roy C. Prosser, and Manzoor Ahmed, New Paths to Learning for Rural Children and Youth. Paris: International Council for Educational Development, 1973.

Darrow, Ken, and Rick Pam, Appropriate Technology Sourcebook. Palo Alto, California: Appropriate Technology Project, Volunteers in Asia, Box 4543, Stanford, California 94305.

Davidson, John R., The Basic Village Education Project in Guatemala. Washington, D.C.: Agency for International Development, 1976.

Davies, Ivor K., Competency Based Learning: Technology, Management, and Design. New York: McGraw-Hill Book Co., 1973.

De Sotelo, Sylvia S., The Radio Schools of the Tarahumara, Mexico: An Evaluation. Washington, D.C.: Academy for Educational Development, 1973.

Dodds, Anthony, Multi-Media Approaches to Rural Education. Cambridge, England: International Extension College, 1972.

Educational Technology: Definition and Glossary of Terms, Vol. 1. Washington, D.C.: Association for Educational Communications and Technology, 1977.

Educational Technology: A Handbook of Standard Terminology and a Guide for Recording and Reporting Information About Educational Technology, Washington, D.C.: U.S. Office of Education, 1975.

Educational Technology: The Design and Implementation of Learning Systems. Paris: Centre for Educational Research and Innovation, Organisation for Economic Co-operation and Development, 1971.

Erdos, Renee F., Establishing an Institution Teaching by Correspondence. Paris: The Unesco Press, 1975.

Etling, Arlen, Characteristics of Facilitators: The Ecuador Project and Beyond. Center for International Education, Amherst: University of Massachusetts, 1975.

Evans, David R., Technology in Nonformal Education: A Critical Appraisal. Center for International Education. Amherst, Mass.: The University of Massachusetts, June 1976.

Evans, David R., and James Hoxeng, The Ecuador Project. Technical Note No. 1. Amherst: The University of Massachusetts, Center for International Education, 1972.

Faure, Edgar, et al., Learning to Be. Paris: UNESCO/ Harrap, 1972.

Filep, Robert T., and Patricia A. Johansen, A Synthesis of the Final Reports of the ATS-6 Satellite Experiments in Health, Education, and Telecommunications. Los Angeles: University of Southern California, School of Communications, 1977.

Filep, Robert T., Dan J. Wedemeyer, and Joan P. Ballard, Communication Satellites and Social Services. Los Angeles: University of Southern California, School of Communications, 1975.

Fischer, Heinz-Dietrich and John C. Merrill, International and Intercultural Communication. New York: Hastings House, 1977.

"Folk Media in Development", special issue of Instructional Technology Report, no. 12, September 1975.

The Fourth Revolution: Instructional Technology in Higher Education. The Carnegie Commission on Higher Education. New York: McGraw-Hill Book Company, 1972.

Freire, Paulo, Pedagogy of the Oppressed. New York: The Seabury Press, 1970.

Fuglesang, Andreas, Applied Communication in Developing Countries: Ideas and Observations. Uppsala, Sweden: Dag Hammarksjold Foundation, 1973.

Fuglesang, Andreas, (Ed.), The Story of a Seminar in Applied Communication. Uppsala, Sweden: The Dag Hammarskjold Foundation, 1973.

Gagne, Robert M., Conditions of Learning. New York: Holt, Rinehart, and Winston, 1965.

Gillette, Arthur L., Beyond the Nonformal Fashion: Towards International Revolution in Tanzania. Amherst, Mass.: Center for International Education, School of Education, University of Massachusetts, 1977.

Gillette, Arthur, Cuba's Educational Revolution. London: London: Fabian Research Series #302, 1972.

Gillette, Arthur, "Rough Theatre Serves Literacy in Jamaica", in Instructional Technology Report, No. 12, September 1975., p. 5.

Grabe, Sven, The Cooperative Education System in Tanzania. Case Study No. 9. Essex, Conn.: International Council for Educational Development, 1972.

Grandstaff, Marvin, Alternatives in Education A Summary View of Research and Analysis on the Concept of Non-Formal Education. E. Lansing, Mich.: Michigan State Univ. (Program of Studies in Non-Formal Education), 1974.

Groombridge, Brian (Ed.), Adult Education and Television: A Comparative Study in Three Countries. London: National Institute of Adult Education (with UNESCO), 1966.

Gross, Ronald, The Lifelong Learner. New York: Simon and Schuster, 1977.

Guide for Team Leaders in Technical Assistance Projects. Technical Assistance Methodology Division, Bureau for Technical Assistance. Washington, D.C.: Agency for International Development, 1973.

Gunter, Jock, Ashton-Warner Literacy Method - Technical Note No. 5. Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, Letter Dice - Technical Note No. 6. Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, Letter Fluency Games, Technical Note No. 9. Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, Market Rummy - Technical Note No. 4, Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, Math Fluency Games, Technical Note No. 8. Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, NFE-TV: Television in Nonformal Education. Amherst, Massachusetts: Center for International Education, 1975.

Gunter, Jock, Number Bingo - Technical Note No. 7. Amherst: Center for International Education, University of Massachusetts, 1975.

Gunter, Jock, Super 8: The Modest Medium. Paris: UNESCO, 7 Place de Fontenoy, 75700 Paris, 1976.

Gunter, Jock, "Trends in Development Assistance Affecting Educational Media", in Educational Media Yearbook: 1978 (Janes W. Brown, Ed.). New York: R. R. Bowker, 1978, n.p.

Hall, Budd, and Tony Dodds, Voices for Development: The Tanzanian National Radio Study Campaigns. London: International Extension College Broadsheets on Distance Learning, No. 6, 1974.

Hamilton, Roland, "The Campesinos of Colombia, Peru, Bolivia, and Paraguay". Paper prepared for AID LRCBCES Project, San Jose State University, 1977.

Handbook on Appropriate Technology. Ottawa, Canada: Canadian Hunger Foundation, 1976.

Harman, David, Community Fundamental Education. Lexington, Mass.: Lexington Books (D. C. Heath Company), 1974.

Hart, William G., How to Select the Right Material to Communicate Your Idea. Manila: National Media Production Center, 1946.

Hawkridge, David, Media Taxonomies and Selection. Milton Keynes, England: The Open University, n.d.

Hawkridge, David, "Satellites and Education: Prospects and Problems", Journal of the British Interplanetary Society, vol. 30, pp. 147-154, 1977.

Head, Sidney, Ed., Broadcasting in Africa. Philadelphia: Temple University Press, 1974.

The Healthy Village - An Experiment in Visual Education in West China. Paris: UNESCO, 1951.

Higgins, Margot, Nonformal Education for the Rural Poor: Project Poshak as a Case Study for Consideration. Paper presented at the NFE Conference, Michigan State University, 1976.

Hornik, Robert, John K. Mayo, and Emile G. McAnany, "The Mass Media in Rural Education", in The World Book of Education--1974: Education and Rural Development, pp. 69-91. Philip Foster and James R. Sheffield (Eds.): London: Evans Brothers, Ltd., 1973.

Hornik, Robert C., Henry T. Ingles, John K. Mayo, Emile G. McAnany, and Wilbur Schramm, Television and Educational Reform in El Salvador. Washington, D.C.: Information Center on Instructional Technology, 1973.

Hostetler, Susan, "Non-Formal Education at Work in the United States: El Taatro Campesino (Farm Workers' Theatre), Instructional Technology Report, No. 12, September 1975, pp. 5, 8.

Hoxeng, James, Hacienda - Technical Note No. 3. Amherst: Center for International Education, University of Massachusetts, 1975.

Hoxeng, James, Let Jorge Do It: An Approach to Rural Nonformal Education. Amherst: University of Massachusetts, Center for International Education, School of Education, 1973.

Hoxeng, James, Alberto Ochoa, and Valerie Ickis, Tabacundo: Battery-Powered Dialogue - Technical Note No. 10. Amherst: Center for International Education, University of Massachusetts, 1975.

Illich, Ivan, Deschooling Society. New York: Harper and Row, 19__.

Information Center on Instructional Technology, "Video Taping: A Medium for Social Change." Instructional Technology Report, March 1974. Washington, D.C.: Academy for Educational Development.

Information in Support of Population Activities. Paris: UNESCO, 1974.

Ingle, H. T., Communication Media and Technology: A Look at Their Role in Nonformal Education. Washington: Academy for Educational Development, Inc., August 1974.

Ingle, Henry T., Television and Educational Reform in El Salvador: Follow-up Study of the First Group of Ninth Grade Graduates. Washington, D.C.: Academy for Educational Development, 1973.

International Commission on the Development of Education, Learning to Be: The World of Education Today and Tomorrow. Paris: UNESCO; London: George Harrap and Co., Ltd., 1972.

Jackson, Sarah, Economically Appropriate Technologies for Developing Countries: A Survey. London: Overseas Development Council, 1976.

Jamison, Dean T., Research Memorandum - Radio and Television for Education in Developing Countries. Princeton, New Jersey: Educational Testing Service, 1975.

Jamison, Dean, and Steven Klees, The Cost of Instructional Radio and Television for Developing Countries. AID Studies in Educational Technology. Washington, D.C.: Academy for Educational Development, 1976.

Jamison, Dean, Steven Klees, and Stuart Wells, Cost-Analysis for Educational Planning and Evaluation: Methodology Application to Instructional Technology. Office of Education and Human Resources, Bureau for Technical Assistance, Agency for International Development, Washington, D.C. 1976.

Jamison, Dean, Patrick Suppes, and Stuart J. Wells, "The Effectiveness of Alternative Instructional Media: A Survey." Review of Educational Research, vol. 44, 1974, pp. 1-67.

Jequier, Nicolas (Ed.), Appropriate Technology - Problems and Promises. Paris: Development Centre of the Organisation for Economic Co-operation and Development, 2 rue Andre Pascal, 1976, Paris 75775 France.

Kennedy, Tim, The Sky-River Project: The Story of a Process. In ACCESS: Challenge for Change. National Film Board (P.O. Box 6100, Montreal, Quebec H3C 3H5 (Canada), 1973.

Keune, Reinhard, and P.R.R. Sinha, Broadcast Teaching and Training. Asian Mass Communication Research and Information Centre, 1977.

Klees, Steven J., and Stuart J. Wells, Economic Analysis of Communication Media for Education and Development. Stanford: Institute for Communication Research, 1976.

LaBelle, Thomas J., Nonformal Education and Social Change in Latin America. Los Angeles: University of California at Los Angeles (UCLA Latin American Center Publication), 1976.

The Learning Resource Center: A Somewhat Refined Model at the Regional Subcenter Level. Tehran, Iran: 1976.

Lee, Hsiang-po, Education for Rural Development in the People's Republic of China. New York: International Council on Educational Development, 1972. ICED Background Paper No. 3 (Essex, Conn., June 1972).

Lester, Lois J. (comp.), A Directory of Sources of Assistance on Educational Technology Development. Washington, D.C.: Information Center on Instructional Technology (Academy for Educational Development), 1975.

Manzoor, Ahmed, The Economics of Nonformal Education: Resources, Costs, and Benefits. New York: Praeger, 1975.

Mayo, John K., Emile G. McAnany, and Steven J. Klees, The Mexican Telesecundaria: A Cost-Effectiveness Analysis. Washington, D.C.: Academy for Educational Development, 1973.

Mayo, J., E. McAnany, and S. Klees, "The Mexican Telesecundaria: A Cost Effectiveness Analysis", Instructional Science, vol. 4, pp. 193-236.

Mayo, John K., and Peter L. Spain, Communication Policy and Planning for Education and Development: Conference Report. Stanford, California: Stanford University, Institute for Communication Research, March 1977.

McAnany, Emile, Radio's Role in Development: Five Strategies for Use. Washington, D.C.: Academy for Educational Development, 1973.

Meyer, John W., John Bock, and Jose Benitez, (Eds.), Comparative Studies in the Institutionalization of Education: A Structural Perspective on the Relations Between Education and Development. Lexington, Mass.: Lexington Books, 1977.

Miller, James G., "The Range of Instructional Technologies and Priority Areas Relating to Their Potential Contribution to Education in Less Developed Countries", Ch. III in Research and Development Priorities for Less Developed Countries. Washington, D.C.: Academy for Educational Development, 1973.

Miller, R. M., "The Meaning of Development and Its Educational Implications." In Agricultural Development Council reprint, October 1972, 5-10. New York: Agricultural Development Council, Inc.

Moreno, Carlos, Carla Clason, and Amparo Borja, Puppets and the Theater, Technical Note No. 12. Amherst: Center for International Education, University of Massachusetts, 1976.

New Educational Media in Action: Case Studies for Planners. Paris: UNESCO, 1967, 3 vols.

Niehoff, Richard O. (Ed.), Non-Formal Education and the Rural Poor. East Lansing, Mich.: Program of Studies in Non-Formal Education, Institute for International Studies, College of Education, Michigan State University, 1977.

"1974 New Delhi Seminar and Workshop on Folk Media," Instructional Technology Report, No. 12, September 1975.

"Non-Formal Education and the Rural Poor", NFE Exchange, No. 5, January 1977, pp. 1-4.

Nonformal Education in Ecuador, 1971-1975. Amherst: The University of Massachusetts, Center for International Education, 1975.

Ofiesh Associates, Inc., "Status Report: LRCBCES Project", June 30, 1977.

Ofiesh, Gabriel D., Instruccion Programada. Mexico, D.F.: Editorial Trillas, 1973.

Ofiesh, Gabriel D., Management Plan for the Organization and Technical Assistance for the Polytechnic Institute for the Government of Panama. Arlington, Virginia: Ofiesh Associates, 1976.

Ofiesh, Gabriel, Programmed Instruction: A Guide for Management. New York: American Management Association, 1965.

Ofiesh, Gabriel D., Recommended Strategy for the Use of Radio for Human Development in Latin America by LA/DR/EST. Arlington, Virginia: Ofiesh Associates, June 24, 1977.

Opubor, Alfred E. (Ed.), Communication for Rural Development. East Lansing, Michigan: Michigan State University, African Studies Center, 1975.

Otte, Max Robert, "Seven Programs for Seven Countries", Adult Leadership, April, 1975.

Paulston, Rolland G. (Ed.), Non-formal Education: An Annotated International Bibliography. New York: Praeger, 1972.

Page, James L., et al., "Using Media Systematically in Non-Formal Education", in Non-Formal Education and the Rural Poor, Richard O. Niehoff, Ed. East Lansing: Michigan State University, pp. 144-147.

Pal, Yash, Some Lessons During the Setting Up of SITE. Stanford: Stanford University, Department of Communication, 1976.

Perrett, H. E. Sagasti, Communication With the Rural Poor, Vol. 1: A Knowledge Base. New York: Academy for Educational Development, 1975.

Perrett, H. E. Sagasti, Communication With the Rural Poor, Vol. 2: An Action Approach. New York: Academy for Educational Development, 1975.

Perrett, H. E., Applied Communications Technology in Rural Development. Washington, D.C.: Academy for Educational Development, 1976.

Peru Education Service Centers: Project Paper. Washington, D.C.: U.S. Department of State, Agency for Instructional Development, 1977.

Pett, Denis W. (Ed.), Audiovisual Communication Handbook. Oklahoma City: World Neighbors International Headquarters, 5116 N. Portland, 1977 (reprinted).

Phillips, H. M., Educational Cooperation Between Developed and Developing Countries. New York: Praeger Publishers, 1976.

"The Pila Project: Cassettes Reach Rural Women", Development Communication Report, No. 18, April, 1977.

Putnam, Tom, Educational Service Delivery to Rural Areas: Progress Report. Stanford: Institute of Communications Research, 1975.

Radtke, Nancy, "Folk Opera", Development Communication Report, July 1977.

Rich, Thomas A., and Edgar G. Nesman, The Basic Village Education Project (BVE): Guatemala. Tampa, Florida: University of South Florida, 1976.

Rogers, Everett, Communication Strategies for Family Planning. New York: The Free Press, 1973.

Rogers, Everett, and F. Floyd Shoemaker, Communication of Innovations: A Cross Cultural Approach, 2nd Ed. New York: The Free Press, 1971.

Rowntree, Derek, Educational Technology in Curriculum Development. New York: Harper and Row, 1974.

Roy, F. B., et al., The Impact of Communication on Rural Development: An Investigation in Costa Rica and India. Paris: UNESCO, 1969.

Ruesch, Jurgen, and Weldon Kees, Nonverbal Communication: Notes on the Visual Perception of Human Relations. Berkeley: University of California Press, 1959.

San Jose State University. Concept Development Conference Report. San Jose, California: School of Education, 1977.

San Jose State University. Learning Resource Center-Based Community Education. Quarterly Report No. 1 (October 1 - December 31, 1976). San Jose, California: School of Education, San Jose State University.

San Jose State University. Learning Resource Center-Based Community Education. Quarterly Report No. 2 (January 1 to March 31, 1977). San Jose, California: School of Education, San Jose State University.

San Jose State University. Learning Resource Center-Based Community Education. Quarterly Report No. 3 (April 1 through June 30, 1977). San Jose, California: School of Education, San Jose State University.

Saunders, Denys J., Visual Communication Handbook - Teaching and Learning Using Simple Visual Materials. London: Lutterworth Press, 1974.

Schramm, Wilbur, Big Media, Little Media: Tools and Technologies for Instruction. Beverly Hills: Sage Publications, 1977.

Schramm, Wilbur, Communication in Family Planning. New York: Population Council, 1971.

Schramm, Wilbur, Criteria for Selecting Media Systems. Stanford: Stanford Institute for Communication Research, 1976.

Schramm, Wilbur, "The Future of Educational Radio and Television," Educational Television International (Wrexham, Wales) Vol. 4, No. 4, December 1970, pp. 282-286.

Schramm, Wilbur, Mass Media and National Development: The Role of Information in the Developing Countries. Stanford: Stanford University Press, 1964.

Schramm, Wilbur, New Educational Media in Action: Case Studies--I. Paris: UNESCO, 1967.

Schramm, Wilbur, Notes on Case Studies of Instructional Media Projects. Washington, D.C.: Academy for Educational Development, 1971.

Schramm, Wilbur, O. H. Coombs, and F. Kahnert, and J. Lyle, The New Media: Memo to Educational Planners. Paris: UNESCO, 1967.

Schumacher, E. F., Small Is Beautiful. London: Abacus Edition of Sphere Books, Ltd., 1974.

Searle, Barbara, Jamesine Friend, and Patrick Suppes, The Radio Mathematics Project: Nicaragua 1974-1975. Stanford: Institute for Mathematical Studies in the Social Sciences (IMSSS), 1976.

Seibert, Ivan N., Educational Technology: A Handbook of Standard Terminology and a Guide for Recording and Reporting Information About Educational Technology. State Educational Records and Reports Series: Handbook X. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Education Division, 1975.

Simmons, A. B., and J. M. Stycos, Information Campaigns and the Growth of Family Planning in Colombia. Ithaca, N.Y.: International Population Program, 1970.

Smith, William, Conscientizacao and Simulation Games. Technical Note No. 2. Amherst, Massachusetts: University of Massachusetts, Center for International Education, 1972.

A Sourcebook on Radio's Role in Development. Washington: The Clearinghouse on Development Communication, 1976.

Spain, P., and S. Klees, Report on Instructional Media Projects in Mexico: A Cost-effectiveness Analysis of the Mexican Radioprimaria, 1973.

Spain, Peter L., Dean T. Jamison, and Emile G. McAnany, Radio for Education and Development: Case Studies, Vol. I. Radio for In-School Education. Washington, D.C.: The World Bank, 1977.

Spain, Peter L., Dean T. Jamison, and Emile G. McAnany, Radio for Education and Development, Case Studies, Vol. II. Radio for Non-Formal Education. Washington, D.C.: The World Bank, 1977.

Spaulding, Seth, Advanced Educational Technologies: Prospects in Education. Paris: UNESCO, 1970.

Spencer-Cooke, Ben, A Status Report on the Current Uses of Educational Television in Selected Developing Countries. San Jose: San Jose State University, 1977, 13 pp. (Unpublished paper).

Srinivasan, Lyra, Perspectives on Nonformal Adult Learning. New York: World Education, 1414 Sixth Ave., 10010.

Technical Assistance Process: An Introductory Bibliography. Washington, D.C.: Agency for International Development, 1975.

Theroux, James M., "Quality in Instructional Radio", Public Telecommunications Review, Nov./Dec. 1976, pp. 42-49.

Thiagarajan, Sivasailam, Programmed Instruction for Literacy Workers. Amersham, Bucks., England: Hulton Educational Publications, Ltd., 1976.

Tickton, Sidney G., Ed. To Improve Learning: An Evaluation of Instructional Technology. A Report to the President and the Congress of the United States by the Commission on Instructional Technology. New York: R. R. Bowker and Co., 1970. Vols. I and II.

Tisa, Benedict, Final Report: Livestock and Range Development in the Dilly Area--Media and Communications Aspects. 1977.

Tisa, Benedict, and Aminur Rahman, An Index of Sources of Information, Instructional Materials, and Assistance for Development Workers in the Subcontinent and Asia. Dacca, Bangladesh: International Voluntary Services, 1976.

Transfer of Educational Materials. Report of an Expert Meeting of Possibilities of International Cooperation in the Exchange of Educational Materials (March 15-16, 1972). Cologne: Deutsche UNESCO-Kommission, 1973.

"Two-Way Radio in Rural Senegal", UNESCO Features, No. 569. Paris: UNESCO, February 1970.

Unesco, An African Experiment in Radio Forums for Rural Development. Ghana 1964/65. Paris: Unesco, 1968.

Unesco, Education in a Rural Environment. Paris: Unesco, 1974.

Van Bol, Jean Marie, and Fakhfakh, Abdelfattah, The Use of Mass Media in Developing Countries. International Center for Social and Economic Documentations, Bibliographic Enquiries Series, No. 1, 1971.

Village Technology Handbook, Mt. Rainier, Maryland: Volunteers in Technical Assistance (VITA), 1970.

Visuals for Villagers. Washington, D.C.: Agency for International Development (AID), 1977.

Waniewicz, Ignacy, Broadcasting for Adult Education. Paris. UNESCO, 1972.

Ward, F. Champion (Ed.), Education and Development Reconsidered. New York: Praeger Publishers, 19__.

Wells, Stuart, Instructional Technology in Developing Countries: Decision-making Processes in Education. New York: Praeger, 1976.

White, Robert A., "An Alternative Pattern of Basic Education: Radio Santa Maria", in Experiments and Innovations in Education, No. 30. Paris: UNESCO, 1976.

White, Robert A., An Evaluation of the Rural Development Program of the Radio School Movement in Honduras. St. Louis, Missouri: Department of Anthropology and Sociology, St. Louis University, 1972.

Whiting, Larry R., Ed., Communities Left Behind: Alternatives for Development. Ames, Iowa: Iowa State University Press, 1974.

Wignaraja, Ponna, "A New Strategy for Development", International Development Review, No. 3, 1976.

Wilder, Bernard, Evaluation of Non-Formal Education. A paper presented at the International Institute on Non-Formal Education of the American Association of Colleges for Teacher Education, April, 1975.

Wilder, Bernard, Non-formal Education: Implications for Planning Learning Opportunities in Developing Countries. A paper presented at a College of Education Seminar at the University of Missouri, Columbia, Missouri, 1975.

Wilder, Bernard, Non-Formal Education: Conceptual and Operational Variations. Address given to AAAS Symposium, Non-Formal Education, Michigan State University Institute for International Studies in Education, December, 1972.

Wilder, Bernard, Planning Rural Education. Washington, D.C.: Agency for International Development, Technical Assistance Bureau, n.d.

Wilder, Bernard, Review of International Experience in Non-Formal Education. Presented as a discussion paper at the Non-Formal Education Workshop I, Ministry of Education, Imperial Ethiopian Government, February, 1974.

Willoughby, Deborah (Ed.), A Sourcebook on Radio's Role in Development. Information Bulletin No. 7. Washington, D.C.: Agency for International Development, 1976.

Wolf, Lawrence, Communication Strategies for Development: A Summary. Washington, D.C.: Academy for Educational Development, 1973.

World Health Organization, The Selection of Teaching-Learning Material in Health Education. Report of WHO Study Group. Geneva: WHO, 1974.

World Yearbook in Education: Education and Rural Development. Philip Foster and James R. Sheffield (Jt. Eds.). London: Evans Brothers Ltd., 1973.

Zelmer, A. C. Lynn, Community Media Handbook. Metuchen, N.J.: Scarecrow Press, 1973.

Zimmer, Anne C., and Fred A. Zimmer, Understanding Visual Literacy and Communication: Culture-Free Guidelines for Designing Culture-Oriented Visual Materials for Literacy and Development. (Preliminary Manuscript). Tehran: International Institute for Adult Literacy Methods, 1976.